



# International Abstract of Surgery

SUPPLEMENTARY TO

Surgery, Gynecology and Obstetrics

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*Supplementary to*

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the Veno s P the Co rs f Art f c  
Pne moth  
LEON KIND ERG M d Mo od R Th Sug cal  
I d cat o P l m nary S pp at s i  
se t d Th ee Case  
PAPP F F t m l B o chal F t l x F l l w g  
Op rat f H y d t d Cy to f th L g  
KRAE R L Ad ma f the B chu  
F STER L C Th T atm t f Acute Empyema  
Thorac

### Esophagus and Mediastinum

GLIO W H The P th l g cal Thymu Chl  
d n from a Roentge ological Sta dpo t  
CR E L F Th D g d T atm t of  
Thymom

## SURGERY OF THE ABDOMEN

### Abdominal Wall and Peritoneum

BA CROFT F W P f l Post perat e Abd m n l  
Scars  
GLIE W F a d L M C SURIER A B Lat R  
sult f the L h S t Op rat v t l  
d I gu al Hernia  
NAPALKO P Occ lt P p g st c f m  
L CEY J T Th Pr to of f t l Adh  
s by Am t e l d  
MATHI U I and MA CHAND G Farly S g cal  
Int rv t Acut P moc ocal l e t t s  
a d l t Res lt

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BROWN A The I f c f f l y p e th y d m po  
th S cr t f Fr H yd chl v l  
PLOS VAN AMSTE P I DeB Ac te Dil t t f  
th St m h d T ma  
CHIRA M d My P C t i G strod d l  
Ham h g Rega d g Wh ch Little I A w  
CAMP J D F th r O b rv t on the D e t  
Ro nt g l g l S g f G t j j l d  
Jeju l Ul  
WEISS A G d HUBST C Th P thoge  
f Gast d d l Ulc  
KO JETZNY G E Th f flamm t ry B f the  
D l pm t f f Typ cal Ulc f th St m h  
nd D d m  
SAUND RS E W A B c t ol g l d Cl l  
St dy f G t Ul  
PALCHET V d LUQU r G The Sug cal T e t  
e t f Ul rs f th S p Th d f th  
St m h (Goo R c to)  
ACKMAN F D M l t pl Ad nop p l m t of th  
St m h w th R port f C se Sh w g  
v ry g D g f M l g s  
QUIN L P P phyla t G t t my

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D g os of Carc om f th Cl 7  
RACI so I P Th Diag s d P c pl f  
T e m t of C ma of the Col 7  
8 JONES D F D t l t s of the Colo Its R l  
t t C ma 7  
19 CHEEVE D The R l s f T tm t f C  
c ma of the Col at th P t P t l R n ham  
If p tal Boston 7  
MARMASSE J Acut Appe d t S q l f  
Labo 7  
G RD WATSON SIR C LACASSAG E CAD S  
LOCAH RT MUMERY J P d Oth rs D  
n R d m th T tm t f C  
c ma f th Rect m a d Col 8  
L SOUE L E l t l A 8

### Liver Gall Bladder Pancreas and Spleen

DECOUCY C a d THUSS O L F t w th  
f pec al R f e c t th Symp t o-Ad l  
hespon e T t 9  
WILLIAMS B a d McLACHLAN D G S Th  
F t l ogy f Ch l cys t 3  
M o f G Expe rime tal My t Ch l cys t 3  
MUR HY G T Th L ffect f Ac te Ep m tal  
Ch l yst t s o th l mpying f th C H  
Hl dd 3  
8 WA SH L L d I v A C Th Et l gy of G H  
St 3  
ALSTO Th T h q of Ch l cys t omy d  
n f u l the l d at Ch l cys t ectomy 3  
2 GORDO TAYLOR G d W tby L E H A B  
ten l cal St dy of f fty C of Ch l cys  
tect y w th Sp c i l R f ce t A atrob c  
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# INTERNATIONAL ABSTRACT OF SURGERY

JANUARY 1931

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### EYE

Mills L. and Jeancon E. G. Unrecognized Magnetic Intra Ocular Foreign Bodies and Their Legal Aspects *Arch Ophth* 1930 iv 194

The authors report on twenty one cases of magnetic foreign body in the eye in which the nature of the condition was not recognized by the specialist who first examined the eye. They cite legal decisions to warn ophthalmologists to be on their guard in such cases. They emphasize that a roentgenogram should be taken of every penetrating wound of the eye even such wounds in the eyelid. Insurance companies are very anxious to have a roentgen report negative or positive especially if the history is the least suspicious.

In the authors opinion failure to recognize foreign bodies in the eye is more common than is generally supposed. No accident is too trivial to be the cause of such foreign bodies. According to recent legal decisions failure to use the X ray in the examination of an injured eye found later to have contained a foreign body constitutes negligence. X ray examination is our most dependable means of detecting intra ocular foreign bodies. Prompt diagnosis and operation greatly improve the prognosis.

THOMAS D. ALLEN M.D.

Terrien F. Optic Atrophy and Hematemesis (Atrophies optiques et hématemèses) *Presse méd* Par 1930 xvi 953

Terrien reports the case of a woman of fifty eight years who had severe hematemesis that left her very weak. Nine days later her vision decreased suddenly and the next morning she woke up completely blind. Both eyes showed moderate mydriasis and did not react to light or convergence. Both disks were white and showed the characteristics of primary atrophy. The retinal arteries were slightly filiform. There were no signs of syphilis or tabes.

A number of cases of visual disturbance after loss of blood have been reported. In most of them the

condition followed hematemesis or metrorrhagia in a very few it occurred after loss of blood from trauma. One factor responsible for the blindness is probably the poor general condition of persons with hematemesis or metrorrhagia. The immediate cause is probably ischemia which generally is associated with vasoconstriction of the retinal arteries. The lesions resemble those seen in quinine amblyopia. The prognosis is unfavorable. In more than half the cases the blindness is permanent. Improvement results in only 38 per cent of the cases and a cure is obtained in only about 12 per cent.

Treatment should be given to prevent recurrence of the hemorrhage as in most cases the blindness comes on after repeated bleeding rather than after a single severe hemorrhage. After the visual disturbance has begun the treatment should be directed toward increasing the arterial pressure and the strength of the heart beat and decreasing the tonus of the eye which increases the ischemia of the retina by compressing the retinal vessels. The intravenous injection of physiological salt solution is a good means of raising the arterial pressure. The tonus of the eye may be lowered by myotics. Terson recommends the instillation of diosin into the conjunctival sac to bring about vasodilatation. Anterior sclerotomy has also been recommended to decrease the normal tonus of the eye. Subcutaneous injections of acetylcholin are of value to reduce the general blood pressure through elective dilatation of the arterioles. They have been known to double the caliber of the central artery of the retina and to improve the visual field greatly. In the authors case they were of no benefit but were not tried until the optic atrophy had been present for three months.

AUDREY G. MORGAN M.D.

Wilder W. H. Some Phases of Secondary Glaucoma *Am J Ophth* 1931 vi 681

Secondary glaucoma may be mechanical, biochemical or inflammatory. The author discusses particularly the second type.

Cases of mild serous iritis or cyclitis may show increased tension produced by the secretion of aqueous having a greater viscosity than normal aqueous. The treatment of such cases is discussed. Homatropine is suggested as a mydriatic as its effect may be more easily counteracted by myotics if the necessity arises. With the formation of posterior synechiae levoglucosan may be tried. Pilocarpine is superior to eserine as it causes less irritation of the iris. When operation becomes necessary a LaGrange or an iris inclusion operation gives better results than trephination.

SAMUEL A. DUEK M.D.

Elschnig A. Keratoplasty. *Arch Ophthalmol* 1931 65

Of 139 cases in which keratoplasty was done for leukoma after a burn or ulceration improvement in vision resulted in 22 per cent. Of cases of interstitial keratitis improvement in vision resulted in 73 per cent. The operation is contra-indicated in aphakic eyes, cases of wide flat synechiae between the iris and the corneal scar, cases of glaucoma, and the cases of patients under fourteen years of age. It should never be attempted sooner than one year after all disease processes in the cornea have completely subsided and even then not before the eye has been given several months of pre-operative treatment.

As the transplantable material may be obtained from the eyes of young as well as old persons with normal cornea it makes no difference whether the remaining anterior segment is normal or pathologically changed or whether the eye of the donor reveals glaucoma or hypotension. The author has compared the blood of the donor and recipient for hemolysis but has been unable to correlate the results as regards the prognosis in the same and different blood groups.

THOMAS D. ALLEN M.D.

Paule W. R. and Culler A. M. Lipæmia Retinalis. *Am J Ophthalmol* 1931 573

Parker and Culler review thirty-eight cases of lipæmia retinalis, two of them their own. Eighty-six per cent of the patients were males ranging in age from nine to fifty years. The condition occurs as a rule in young diabetics because they have a less efficient fat metabolism than older persons. The lipæmia can be recognized ophthalmoscopically when the blood fat rises above 3.5 per cent. When the blood fat falls to 2 per cent the appearance of the fundus returns to normal.

In thirty-five of the thirty-eight cases reviewed there was evidence of acidosis. Apparently acidosis is a prerequisite of the condition. Probably no disease other than diabetes uncomplicated by treatment gives rise to a lipæmia so severe as to be recognized ophthalmoscopically.

Of eighteen patients not treated with insulin one recovered and of fifteen treated with insulin one died.

Lipæmia retinalis does not alter the prognosis of the diabetes in which it occurs.

LESLIE L. MCCOY M.D.

## EAR

Hagens E. W. Otolitis t. h. Otolitis gl.

193 273

Various theories have been advanced as to the causal factors and the development of the foci in otosclerosis. It is known that the condition frequently occurs in several members of a family and that females are more frequently attacked than males. So far as the author is aware the youngest child in whom foci have been found was about one year of age. In the ears of embryos sectioned by Hagens no evidence of foci was seen. According to one theory otosclerosis is due to an inherent defect of the ear mechanism or a congenital inferiority of the ear. However no microscopic changes supporting this theory have been found. According to another theory the foci develop from remnants of embryonic tissue. It has been suggested also that the connective tissue in Cozzolino's zone is the starting point of the focus but this assumption does not explain how foci develop in other parts of the petrous bone.

The possibility of the development of the foci from cartilaginous remnants is of interest. Several of the foci in the sections studied by the author appeared to be closely related to or actually touched the remnants. However cartilage remnants were found in regions in which foci are discovered rarely if at all and remnants have been seen in many adult temporal bones showing no foci. Accordingly the importance of the relationship between cartilaginous remnants and the foci is not easily settled. It has been suggested that the foci may develop where ossification occurred last. Sections of the ears of embryos, newborn infants and older infants examined by the author have shown that the regions which are frequently cartilaginous when all else is ossified include in addition to Cozzolino's zone the regions behind the vestibule in the posterolateral and posteromedial portions of the petrous bone.

The various factors which have been suggested as exciting causes of the development of foci include vasoconstriction of the vessels in the petrous bone, enous stasis, chronic local inflammation and chronic local infection. Factors influencing the condition include gastrointestinal toxæmia, foci of infection, syphilis, pregnancy, glands of internal secretion, vascular conditions, tuberculosis, a diet lacking in vitamins and blue sclera with fragile bones. Those who are opposed to the view that chronic infection may be responsible call attention to the lack of evidence of infection in the sections such as the presence of round cells and plasma cells. It is possible however that a previous infection may have subsided without leaving permanent changes.

With regard to the development of the foci after they have appeared there are two main theories. The theory most generally accepted is that normal bone is absorbed and then replaced by new vascular bone which later becomes denser. According to the other theory the focus is a tumor-like formation.

that destroys the normal bone as it develops. If the first theory is correct we might expect to find evidence of absorption of the normal bone in the region of the focus. However such evidence is definitely lacking in some foci and indistinct in others. In the sections showing possible changes which have been seen by the author the bone adjacent to the focus appeared rarefied. In the absence of osteoclasts the most plausible theory is that the alteration was the result of a chemical action. In several of the foci there was a crevice like gap or fracture line between the edge of the focus and the adjacent bone. This was no doubt an artificial gap but it perhaps indicated a difference of chemical composition between the bone of the focus and the bone next to it. The development of the vascular stage was prominently shown in most of the foci and in the bone of one patient the denser older stage seemed to be presented.

In the vascular foci a fair number of osteoclasts and osteoblasts were seen. The latter were situated at the bony edges lining the spaces and frequently a pink staining layer of bony tissue was noted just underneath. It seems possible that if this bone building process were to keep up for a period of years the tissue would gradually become more dense and the spaces smaller until finally a dense tissue would result.

The view that the focus is tumor like has seemed plausible because of the frequent lack of evidence of a change in the bone near the border of the focus. However the foci do not simulate ordinary tumors as they do not have a tumor cell common to them. In the author's sections the most characteristic evidence of advance seemed to be finger like vascular projections extending from the focus into the adjacent bone. In some instances these were covered by several rows of blue staining cells with canaliculi.

It is apparent that the focus could enlarge by gradually throwing out tentacles into the adjacent bone and slowly replacing it. The adjacent bone would be prepared probably by a chemical action. The enlargement of the foot plate of the stapes indicates that the condition not only replaces previously existing bone but also develops beyond the previous bounds thus simulating hyperostosis.

JAMES C BRASWELL M D

Nash G S A Study in Otosclerosis *Am J Otol Rhinol & Laryngol* 1930 xxxiv 769

Nash states that of a series of 1000 cases of deafness fewer than 6 per cent were definitely diagnosed as otosclerosis.

In 48 per cent of cases of otosclerosis there is a family history of the condition. In 65 per cent the deafness begins at the age of puberty during pregnancy or at the time of the menopause. Tinnitus is present in 76 per cent of the cases. Paracusis wilisiana in 31 per cent. a decrease in the tickle reflex in 86 per cent and vertigo in 4 per cent.

A careful histopathological distinction must be made between primary otosclerosis and secondary

atrophic lesions produced by ankylosis of the stapes of middle ear origin.

Chronic catarrhal otitis media and chronic suppurative otitis media may degenerate into forms which simulate otosclerosis but clinically cannot be considered complications of the latter condition.

JAMES C BRASWELL M D

Sourdille M On the Surgical Treatment of Otosclerosis *J Laryngol & Otol* 1930 xlv 601

The author reports his experiences in the surgical treatment of nineteen cases of otosclerosis. In six cases the treatment has been completed. The first operation is an atticotomy simple or combined with an internal plastic with a tympanic hinge. The object of this procedure is to explore and isolate the middle ear. A few months later the external semicircular canal is opened aseptically and the fenestration is occluded by a thin epidermic membrane.

The end results depend entirely on the behavior of the epidermic flap. If this flap remains thin and closely applied against the osseous plane and the orifice of trephination of the semicircular canal the hearing is good but if retraction ulceration or keloid formation occurs the result is a failure.

GEORGE R McAULIFF M D

Meurman Y The Anatomy of the Aqueductus Cochleæ and Remarks Regarding Its Physiology (Zur Anatomie des Aqueductus cochleæ nebst einigen Bemerkungen ueber dessen Physiologie) *Acta Soc med Fennicæ Duodecim* 1930 xlv Fasc 11

In a study of the anatomy of the aqueductus cochleæ the author made injection tests on rabbits and studied serial sections of human temporal bones from Wittmarck's collection in Hamburg. The human material consisted of fifty five temporal bones obtained from thirty two cadavers.

In the rabbit the aqueductus cochleæ is an osseous canal from 2 1/2 to 3 mm long and from 300 to 500 microns wide which contains a tube of soft tissue projecting from the arachnoidea. The part of the tube which is closest to the brain is hollow whereas the part which is closest to the cochlea is filled by a loose network of connective tissue that becomes denser toward the scala tympani. The reticulum of connective tissue fills up also an upper and posterior corner of the scala tympani between the membrane of the round window and the osseous wall.

By injection tests made with suspensions of Chinese ink and other substances it was proved that there is a communication by way of the aqueductus cochleæ between the subarachnoid space of the brain and the perilymphatic space of the inner ear. However coarse particles of the suspensions were retained by the network in the arachnoid tube. It appears that the current flows more easily toward than away from the cochlea.

In man the length of the aqueductus cochleæ is at least 10 mm in the adult and 5 mm in the newborn infant. The width of the canal increases from

the cochlea toward the brain. Close to the external aperture the canal is about fifteen times wider than at its narrowest point. The narrowest part is about 1 mm from the scala tympani. The average width of this portion is about 110 microns in the osseous canal and about 60 microns in the canal lined with endosteum. However it varies considerably in different persons. The extreme measurements are 60 and 200 microns in the osseous canal and 55 and 120 microns in the canal lined with endosteum. Complete obliteration may occur in the narrow section probably from exaggerated endosteal ossification.

In children as compared with adults the canal is wide but in the specimens studied the absolute measurements did not exceed the measurements in adults. It is possible that after the age of sixty years narrowing may occur especially in the narrowest section.

In man the arachnoidea of the canal forms a hollow tube in the part toward the brain while toward the cochlea at a distance of from 1 to 2 mm from the scala tympani it usually changes into a cord without a lumen. The latter part contains reticular tissue or is hollow in only rare cases. The arachnoidea may show variations in its development also in the part toward the brain.

Theories regarding the physiological importance of the canal are reviewed. It is presumed that in man the greater perivascular spaces of the modiolus cochleæ to a certain extent make up for the greater width of the aqueductus cochleæ in other mammals.

**Meurman 1. Diffuse Suppurating and Necrosing Inflammations of the Internal Ear with Petricular Reference to the Aqueductus Cochleæ and the Arachnoidea.** (Be bcht g n dft et nd d k t e nd l h e t e d ung mit bes de B rue k cht gu d P th log dr Sch k e w s rlet g u d N rv nd chintt l l) Act 5 m d l D d e m o i f c

The author attempted to determine the relationship between the pathological picture in the internal ear and the possibilities for the propagation of inflammation and infection along preformed routes between the inner ear and the meninges. As the aqueductus vestibuli seldom transmits infection directly to the meninges it is discussed only briefly. The investigation of the aqueductus cochleæ is reported in detail.

The material consisted of eighteen clinical cases of inflammation of the inner ear from the clinics of Wittmaack in Jena and Hamburg. In sixteen of these cases serial sections of the petrous portion of the other not primarily diseased temporal bone were also studied histologically.

In addition experiments were carried out on animals. In rabbits the inner ear was infected with various types of bacteria either directly or from the middle ear after injury of the membranes of the fenestræ with chemicals. In addition the author studies a series of specimens of the petrous portion

of temporal bones obtained from dogs with meningococcal infection.

This material and the findings of other investigators seemed to indicate that necrosis of the inner ear may be caused by various factors such as hydrops (Wittmaack) direct injury by bacteria or toxins and vascular injuries. Vascular injuries however are an important factor in all necroses of the inner ear.

The human material studied seemed to show that meningitis originating in the inner ear is due more frequently to suppurative than to necrotic changes of the inner ear. Although some necroses of the inner ear develop from a suppurative inflammation nevertheless it is evident that extension may occur in the stage of suppuration and does not require a deep necrosis. Several experiments on animals suggested that even in severe necrosis of the inner ear conditions may be such that extension of the inflammation and infection toward the meninges is prevented. This may be explained by strong resistance of the organism to the necrosing action of the bacteria in the form of a copious exudation of leucocytes.

In suppurative inflammation of the inner ear following infection of the fenestræ the routes of extension closest to the fenestræ are most exposed. In inflammations due to erosion of the labyrinthine capsule early involvement of the preformed routes close to the original site of the infection is not evident. In inflammations of the inner ear with diffuse necrosis the preformed routes are involved more or less equally.

In the human material studied advance of the inflammation toward the meninges was found to occur most frequently by the modiolus cochleæ and next most frequently by the vestibular foramina especially those of the macula sacculi and least frequently by the aqueductus cochleæ. Often several of these routes were involved simultaneously.

Previous anatomical studies made by the author of pathological cases studied by other investigators and the material examined in this investigation show that in adults the aqueductus cochleæ is seldom an important route for the advance of pathogenic bacteria from the inner ear to the meninges. This is due chiefly to its anatomical structure. In childhood it is of somewhat more pathological importance because of the slowness of the narrow part of the canal. Similar conditions prevail in the occasional adult with a canal having an open lumen throughout its extent. This was proved by some of the experiments carried out on animals.

In the cases studied extension of the inflammation from the meninges to the inner ear of the side which became diseased secondarily occurred most frequently through the modiolus canal next most frequently through the aqueductus cochleæ and least frequently through the vestibular area foramina.

In rabbits and dogs in contrast to man the aqueductus cochleæ was of chief importance in the passage of bacteria between the inner ear and the meninges.

The author adds remarks regarding the operative treatment of suppurative inflammations of the inner ear. He believes that in certain cases trephination of the fundus of the auditory meatus by the Uffenorde technique is the procedure of choice.

**Buzolanu G.** Research Relative to the Mechanism of Production of the Barany Caloric Reaction (Pecherches relatives au mecanisme de production de l'epreuve calorique de Barany) *Arch internat de laryngol* 1930 xxvi 680

In a clinical and experimental study the author found that the sympathetic nervous system plays a part in the mechanism of production of the caloric Barany reaction. It influences the vasomotor phenomena which transmit the thermic excitation to the labyrinth or perhaps influences directly the pressure of the lymph in the labyrinth. Sympathetic tonia increases the excitability of the labyrinth probably by means of vasomotor phenomena while the parasympathetic system diminishes this excitability. Therefore when it is necessary to cause thermic excitation of the labyrinth in certain specific diseases the state of the sympathetic nervous system must be taken into consideration. In drawing conclusions as to the presence of hyperexcitability in hyperthyroidism for example we must always bear in mind the pre-existing sympathiconia in this condition.

By partial or total resection of the cervical sympathetic the author has obtained a change in the caloric Barany reaction characterized by a delay in the development of the nystagmus and a decrease in the duration of the phenomenon. When the parasympathetic myoneural junctions were paralyzed by large doses of atropine the reaction developed more quickly and was prolonged. **ANTHONY R. CAMERO, M.D.**

**Smith J. M.** A New Operation for Chronic Purulent Mastoiditis. *Laryngoscope* 1930 xl 553

In the operation described by Smith the usual simple mastoid incision is made starting over the center of the mastoid tip and following the normal curve of the external ear from  $\frac{1}{4}$  to  $\frac{1}{2}$  in behind its attachment. The incision is extended upward just above the temporal ridge. The cortex is exposed with the spine of Henle, the temporal ridge and the mastoid tip in full view. The bone is removed just below the temporal ridge and behind the spine of Henle until the mastoid antrum is opened. The posterior canal wall is not lowered unless it is necessary to remove the outer part to avoid a far forward lateral sinus. All of the granulations and diseased bone are removed from the antrum and mastoid cavity as in the simple mastoid operation. In the average chronic case there are few if any mastoid cells; however the cavity is cleansed to healthy plate or bone.

The aditus is then enlarged by removing a small portion of the inner part of the bridge just external to the incus and horizontal semicircular canal. If this opening is made too large it may interfere with the filling in of the posterior wound by granulations.

The remnants of the ossicles are removed through the aditus. In some instances it is easier to remove the malleus through the external auditory canal. The posterior half of the membranous canal is then carefully separated from its bony attachment in the external auditory canal and held in place against the anterior canal wall, the anterior membranous attachment being left intact if possible. In this way access is gained to the middle ear and attic. Through the opening the granulations and debris are removed from the middle ear.

The annulus tympanicus is removed and the eustachian tube thoroughly curetted. The attic and the bony space extending posteriorly into the aditus then remain to be cared for. Free access is obtained to this space in the roof of the middle ear by partially removing the external wall of the attic. This corresponds to the rim of bone furnishing the attachment for the upper part of the annulus tympanicus or the bony rim on each side of the zygomatic fissure. The removal of this bone together with the contents of the middle ear must be carefully performed since the floor of the cavity at the time of the operation is represented by the internal wall of the middle ear. The facial nerve crossing the inner wall through the fallopian canal is covered by a very thin layer of bone and pressure on its wall will result in facial paralysis. An accurate knowledge of the anatomy is necessary to avoid removing the stapes or injuring the labyrinth. Care must be taken to leave a firm posterior bony canal wall as necrosis may result if too much of it is removed.

At this point in the operation the middle ear, attic antrum and mastoid cavity are clean and the posterior wall is in its normal position. The membranous canal is now restored as nearly as possible to its original position in the external auditory canal and packed in place with vaseline gauze. A cigarette drain is inserted directly into the mastoid antrum behind and the mastoid wound closed above and below with clips. **JAMES C. BRASWELL, M.D.**

## NOSE AND SINUSES

**Rosenwasser H.** Plasmocytoma of the Nasal Cavity. *Laryngoscope* 1930 xl 576

Rosenwasser reports a case of nasal plasmocytoma in detail. A review of the literature shows that although the tumor does not invade adjacent tissues and does not always involve the neighboring lymph glands it generally recurs even when extirpated surgically. In many of the cases reported in the literature there were multiple tumors associated with chronic cachexia. **JAMES C. BRASWELL, M.D.**

## MOUTH

**Dorrance G. M.** Congenital Insufficiency of the Palate. *Arch Surg* 1930 xxi 183

Congenital insufficiency of the palate is a condition in which the velum assisted by the superior constrictor muscle of the pharynx fails to produce

the sphincter like closure between the nasopharynx and the oropharynx which is essential for the production of normal speech. Attention was first called to it by Roux in 1825. In America it was first mentioned by Mears of Philadelphia in 1893.

Cases may be classified into the following six groups

1 Those in which the entire palate is normal in appearance but the velum is unable to approximate the pharyngeal wall because of anteroposterior shortening of the hard palate and the velum

2 Those in which the hard palate is normal and the velum is shorter than normal

3 Those in which the velum is normal in length and the hard palate is short

4 Those in which the hard palate is normal in length and outline but there is a submucous cleft of the velum

5 Those in which the velum is normal in appearance and length but there is a submucous cleft extending into the hard palate

6 Those of insufficiency of the palate after successful cleft palate operations in which the velum is too short to reach the posterior pharyngeal wall

The cause of congenital insufficiency of the palate is unknown but it is apparent that heredity plays an important rôle

Velopharyngeal closure is accomplished by the superior constrictor muscle of the pharynx which pulls the relaxed muscular tissue of the posterior wall of the nasopharynx upward and forward while the lateral walls approach the midline. The velum is brought upward and backward by the levator palati muscles. The tensor palati muscles make the palatine aponeurosis tense by pulling the velum forward and outward.

The palatopharyngeus muscle has a portion known as the salpingopharyngeus which on contracting increases the bulk and thickness of the pharyngeal wall thus narrowing the lumen of the pharynx. The other portion known as the palatopharyngeus depresses the velum on contracting thus acting as a direct antagonist to the levator palati muscles. The posterior pillars of the fauces are formed by the palatopharyngeus muscles which have more to do with deglutition and vomiting than with speech.

The more active contraction of the portion of the pharyngeal wall known as Passavant's cushion in an attempt to bring about velopharyngeal closure leads to marked development of the pterygo-pharyngeus muscle. In like manner the superior constrictor muscle of the pharynx undergoes hypertrophy by continuous use.

The blood supply of the palate is derived from the nasopalatine vessels the posterior and accessory palatine vessels and branches from the pharyngeal anastomosis. The nasopalatine arteries anastomose with the posterior palatine arteries. The descending palatine arteries supply the hard palate the alveolar processes and the gum tissues. The accessory palatine arteries supply the velum. The pharyngeal anastomosis is formed by the terminal branches of

the lingual facial and ascending pharyngeal arteries. The bony palate is said to have an independent blood supply being thus protected from necrosis following cleft palate operations. There is a fairly rich anastomosis between the arteries on the same side but not much with those of the opposite side.

The nerve supply of most of the muscles of the walls of the pharynx is derived from the pharyngeal plexus which is formed by branches from the glossopharyngeal spinal accessory and pneumogastric nerves. The tensor palati muscle is supplied by the mandibular branch of the trigeminal and the levator palati by the bulbar root of the spinal accessory nerve.

The final diagnosis of congenital shortening of the palate can be definitely established only after the child makes efforts to speak. Children with this condition are apt to be slow in learning to speak and speak indistinctly. Other conditions which must be ruled out when the diagnosis of congenital insufficiency of the palate is made are paralysis of the palate stomatolalia and speech defects due to the loss of teeth or faulty use of the tongue.

It was early recognized that perfect speech can be obtained only when the velum is brought in contact with the posterior walls of the pharynx. In order to accomplish this some surgeons have attempted to lengthen the palate others to bring the wall of the pharynx forward and others to use an artificial velum.

In 1865 Passavant outlined three different operations to secure the necessary approximation only to condemn them all in 1878 when he devised a procedure for the correction of velopharyngeal deficiency. In the latter he made a shelf like projection on the posterior wall of the pharynx from a quadrilateral flap which was raised and folded over on the raw surface. However the shelf gradually disappeared and the procedure was soon abandoned.

Among other operations proposed by various surgeons was an osteo-uranoplasty which was first suggested by Dieffenbach in 1826 and is still in use by some surgeons in suitable cases of cleft palate.

In 1889 Billroth advised dividing the hamular process in cleft palate operations for the purpose of releasing tension on the line of suture. In 1893 division of the tensor palati palatoglossus and palatopharyngeus muscles was suggested by Mears.

The injection of paraffin into the retropharyngeal space to advance the posterior wall of the pharynx has been used but is not to be recommended because it is dangerous.

A method described by Blair in 1911 consisted of an autoplasmic operation in which use was made of sliding flaps from the buccal mucosa. Fickerell in 1912 suggested a method combining palatoplasty with prosthesis. In 1924 Rosenthal revised Schoenborn's velopharyngoplasty with a modified Langenbeck uranoplasty to be done at one sitting. This method was criticized by Ernst and in 1925 an operation known as the Ernst-Hallé method was described.

In 1926 von Giza advised the implantation of fat and fascia tissue into the retropharyngeal space to produce bulging of the pharyngeal wall. To decrease the chance of infection he suggested entrance through the neck by way of the superior lateral triangle. Kirkham in 1927 shortened the constrictor muscle of the pharynx so as to permit it to contract more forcibly. He believed that velopharyngeal insufficiency was due more to the widened pharynx than to the shortened velum.

Interlamina osteotomy of the pterygoid process and pterygomaxillary osteotomy was suggested by Limberg in 1927. This was done to preserve the continuity of the posterior palatine vessels and nerves which Limberg claimed were divided by the Ernst-Halle operation. In 1928 Wardill developed a two-stage operation by which he combined narrowing of the pharyngeal canal with closure of the existing cleft in the palate.

In cleft palate cases the insertion of the levator palati muscle is placed so far forward that it cannot possibly pull the velum against the posterior pharyngeal wall as would the normally placed muscle. Moreover when the elevated palatine mucoperiosteum is completely freed from its attachment to the bony palate the fan-shaped portion of the tendon of the tensor palati prevents backward displacement of the flap. Division of this fan-shaped portion with liberation of its attachment to the bony palate permits the palate to fall backward by its own weight so that it approximates the pharyngeal wall.

With the importance of these two points in mind the author has devised the following operation:

An incision is made parallel with the alveolar margin and as near it as possible to liberate a flap of palatine mucoperiosteum. The flap is then freed from the bony palate from before backward. Dissection is carried down to the attachment of the palatine aponeurosis at the posterior edge of the bony palate and the posterior palatine arteries are divided. This constitutes the first stage of the operation. In some cases it has been possible to complete the entire procedure in one stage, but as a rule the two-stage operation is more satisfactory.

When the operation is done in two stages the first stage is completed by replacing the flap in its original position and suturing its edges and the second stage is carried out ten days later. In the second stage the flap is raised again and the attachment of the palatine aponeurosis to the bony palate is divided along with that portion of the tensor palati muscle which is inserted into this aponeurosis. The flap then falls backward against the posterior wall of the nasopharynx. The anterior edge of the flap is sutured to the hard palate and to the soft tissue on either side. It is further supported by placing an appliance on the teeth or passing a silver wire around each of the molar teeth. The denuded surface produced by the posterior displacement of the velum rapidly fills in with granulation tissue.

The author reports the use of this method with success in three cases of congenital insufficiency of

the palate and in seven cases of shortened palate in which operation had previously been performed but velopharyngeal closure was insufficient.

WILLIAM G. HAMM, M.D.

## PHARYNX

Vialle, Le Coq and Ronchese. Mixed Chancre of the Tonsil (Le chancre mixte de l'amygdale). *Arch. internat. de laryngol.* 1930 xxxvi 513.

The authors define a mixed chancre of the tonsil as an ulcerative lesion in which the fusiform bacillus and the spirillum of Vincent's angina are found as well as the spirochete of syphilis. With regard to the pathogenesis of such a lesion it is theoretically conceivable that syphilitic infection can be grafted on a previously existing tonsillar ulceration resulting from Vincent's angina. However as the pain and discomfort of Vincent's sore throat the general malaise incident to it and the repulsive odor it imparts to the breath all preclude the possibility of either normal or abnormal sexual relations the origin of luetic contagion the authors believe that Vincent's infection becomes engrafted on a pre-existing luetic sore of the tonsil.

In reporting two cases of mixed chancre of the tonsil the authors emphasize the difficulty in the diagnosis. The clinical picture is dominated by the phenomena of Vincent's infection. Digital examination for induration a careful microscopic study and repeated blood Wassermann tests are indispensable diagnostic aids. The identification of the spirocheta pallida may be difficult because of the not infrequent presence of the spirocheta dentium which closely resembles the spirocheta pallida morphologically. The spirocheta dentium however is shorter and slightly more motile and contains fewer and closer spirals than the spirocheta pallida.

ANTHONY R. CAMERO, M.D.

## NECK

Ellers. Blood Cysts in the Region of the Neck (Ueber Blutcysten der Halsgegend). *Deutsche Zeitschr. f. Chir.* 1930 cccxxiii 270.

The classification of blood cysts into true and pseudo forms which is generally accepted today was suggested by Spannaus. True blood cysts are embryonal inhibition malformations that is substitution formations in the fetal anlage of large veins or varix nodules with or without communication with the mother vessel. Pseudo blood cysts may originate from angiomas, lymphangiomas, branchial duct cysts or lymph gland malformations. Koch reported a case in which the subclavian vein on one side of the body was completely absent and its place was taken by three large blood sacs in wide communication with each other. Hueter, Bajardi, Guenther and Borrmann have made similar findings. In describing the end results of dilations of the veins Rokitsansky called attention to cylindrical and irregular sac-like venous protrusions. He concluded that



the isolated venous nodes are a rare type of the latter. In discussing the development of pseudo blood cysts from branchial duct cysts the author quotes Gluck and others regarding their development from congenital lymph gland malformations he refers to Bayer.

In conclusion Eilers reports a case of his own. The patient was a boy aged seven years who complained for weeks of weakness, twinges and a peculiar numbness in the right arm. The mother soon noticed a mass the size of a cherry which grew to the size of a hen's egg. Exploratory puncture which evacuated from 50 to 70 ccm of a bluish black, not thickened blood, was followed by almost complete collapse of the protrusion, but after a few days the mass reappeared. Total extirpation of the cyst was then done under anesthesia induced with percaïn. On histological examination the structure was found to be a pseudo blood cyst originating from a deep cavernous angioma. The pressure of the straps of the child's school bag was believed to have been the exciting cause. **PLATE 2 (2)**

#### Brown A. The Influence of Hyperthyroidism upon the Secretion of Free Hydrochloric Acid. S. G. 93, 20, 3

Of twenty cases of hyperthyroidism in which the author studied the gastric acidity he found achlorhydria in eleven, hypochlorhydria in five and normal acidity in four. Of twelve patients with exophthalmos seven had achlorhydria, one hypochlorhydria and four a normal acidity. Of eight patients without exophthalmos four had achlorhydria and four had hypochlorhydria. Of fifteen patients without fibrillation eight had achlorhydria, four hypochlorhydria and three a normal acidity. Of two with temporary fibrillation both had achlorhydria. Of three with fixed fibrillation one had achlorhydria, one had hypochlorhydria and one had a normal acidity. The author draws the following conclusions:

1. The symptoms of hyperthyroidism can be interpreted in terms of an increased sympathetic drive due to the action of the altered thyroid hormone causing overstimulation of the thoracolumbar sympathetic system which overrides the normal antagonistic moderator action of the parasympathetic.

2. Depending upon which portion of the sympathetic system becomes most highly stimulated there will be a relative preponderance of ocular, cardiac or gastric symptoms.

3. The stimulation of the gastric sympathetic acts inhibitory on acid secretion and results in a diminution or lack of free hydrochloric acid.

I. S. MODERN, M.D.

#### Clute H. M. Operative Mortality in Hyperthyroidism. J. Am. M. A. 93, 389.

The author discusses the fatalities in 2769 cases of hyperthyroidism treated surgically at the Lahey Clinic, Boston, during the five year period from

1925 to 1929. In the 2128 cases of primary hyperthyroidism (exophthalmic goiter) there were 14 deaths, a mortality of 0.65 per cent, and in the 641 cases of toxic adenomatous goiter there were 12 deaths, a mortality of 1.87 per cent.

Nineteen of the 26 deaths were due to postoperative intensification of the thyroid intoxication, 3 to emboli, 2 to mediastinitis, 1 to pneumonia late in convalescence and 1 to typhoid. The author believes that 12 of the deaths were unavoidable, but that 14 might have been due to an error in judgment.

The latter are of special interest. All were the result of postoperative intensification of the thyroid intoxication. In 8 cases the postoperative increase in the intoxication was complicated by pneumonia.

Previous to 1925 hyperthyroidism was treated at the Lahey Clinic by multiple stage procedures. In 1925 these were superseded by preoperative preparation with iodine followed by operation performed in 1 stage. As the mortality increased after this change a return was then made to a judicious use of the multiple stage operation, whether preoperative iodine medication was used or not. The mortality was then reduced to the minimum.

In conclusion the author states that the unexpected deaths are those of patients of forty years or over, those who weigh only about 100 lb. or have had a large loss of weight, and those who have suffered from well-marked hyperthyroidism for more than a year. He recommends that in the cases of such patients the thyroidectomy be performed in stages. **JOHN H. WOOLSEY, M.D.**

#### Roeders C. A. and Killins W. A. A. The Type of Toxic Thyroidism. J. Med. 193, 1, 39.

The authors first discuss the structure and function of the normal and goitrous thyroid gland. In the normal thyroid the type of parenchyma is to be distinguished. These are characterized respectively by: (1) interfollicular or embryonic cell, (2) fetal follicle, (3) mature follicles and (4) colloid follicles.

The interfollicular or embryonic cells and the fetal follicles which are formed from them decrease where the mature follicles which are probably formed from the fetal follicles increase as the organism ages. The colloid follicles are retaining or active units having the same life history as the mature follicles.

The structure of the hyperfunctioning thyroid and toxic goiter shows two types of parenchymatous changes: (1) parenchymatous hyperplasia and (2) parenchymatous hypertrophy. The hyperplasia is characterized by an increase in the number of interfollicular or embryonic cells which produce no secretion in the intrafollicular secretory cell and the encapsulated and non-encapsulated fetal follicles. The hypertrophy is characterized by an increase in the size of the cell and follicles.

The authors report a group of cases of progressive exophthalmos with a normal or subnormal basal

metabolic rate susceptibility to desiccated thyroid no response to the administration of iodine and no reaction to partial or complete thyroidectomy

JOHN H. WOOLSEY M.D.

Feci L. and Pietrantonio L. Roentgen Findings in Laryngeal Tuberculosis (Di alcuni reperti radio grafici nella tubercolosi larin ea) *Radiol med* 1930 xvii 987

The authors made roentgenograms of the larynx of normal persons persons with chronic pulmonary glandular or osseous tuberculosis without laryngeal lesions and persons with old and recent laryngeal tuberculosis Direct roentgen examination of the larynx with a laterolateral projection such as that used in the examination of the cervical spinal column gives a very good picture of the larynx and trachea

In patients with non laryngeal tuberculosis the roentgenograms showed premature ossification at the sites of normal ossification or zones of disseminated calcification particularly in the posterior part of the larynx In some cases the latter looked like residues of preceding laryngeal tuberculosis which had been slight and had not caused clinical symptoms In the cases of laryngeal tuberculosis the roentgenograms showed the chief phases of tuberculous chondritis and perichondritis In the

acute phase with rapid destruction of cartilage and disappearance of the stroma rarefaction of the cells and suppuration of the cartilage itself the roentgen findings were characterized by irregular zones of rarefaction of an amorphous granular appearance and indistinctness of the edges and structure of the cartilage In some cases there was thickening in various sites particularly in the posterior part of the larynx In primary and beginning chondritis and perichondritis the roentgen findings were not sufficiently characteristic for a diagnosis In chronic laryngeal tuberculosis roentgen examination showed the intensity of the calcification and ossification of the laryngeal cartilages which was manifested by disseminated opacities in which the normal trabecular structure usually could not be distinguished These pictures were sometimes superimposed on those of a condensing osteitis The histological pictures varied from normal centers of ossification to centers undergoing diffuse necrosis and centers showing zones of superficial or deep calcification alternating with areas of cartilage that were almost normal or undergoing suppuration

Roentgen examination of the larynx and trachea in laryngeal tuberculosis permits a more exact diagnosis than laryngoscopic examination alone

AUDREY G. MORGAN M.D.

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Pancoast H K and Fry T Encephalography as the Roentgenologist Should Understand It An Attempt to Standardize the Procedure *P d I* 1913 xv 173

Encephalography has become established as a valuable and reliable roentgenological procedure for more exact diagnosis and localization in cases presenting more or less obscure symptoms of organic cerebral disease. It permits the detection of many cortical lesions that could not be diagnosed without it. By a proper technique a clear visualization of the cerebral surfaces surrounded by cerebrospinal fluid may be obtained. The outline of the fluid spaces filled with air is such that one familiar with the normal anatomy of the structures can determine the presence of even a slight disturbance of relationships. By comparing abnormal appearances of the fluid spaces in the roentgenogram with pathological specimens showing similar gross defects or with operative findings it has now become possible to diagnose correctly the majority of cases of obscure cerebral symptoms from a study of the roentgenogram after due consideration of the history and neurological signs.

Accurate roentgenological diagnosis requires a thorough knowledge of the anatomy of the part examined an understanding of the pathological changes in conditions amenable to diagnosis familiarity with normal roentgenographic appearances and experience in the interpretation of roentgenograms. Accurate encephalography requires in addition a uniform and exact roentgenological technique to produce roentgenograms which can be interpreted and a technique of air injection carried out with proper regard to changes in intracranial pressure and proper manipulation of the patient during the procedure. Standardization is essential for comparison of the findings in one group of cases with those in another and of the findings of different examinations in the same case.

The roentgenological technique and the method of air injection used by the authors are described in detail. Neuro-anatomical relationships with regard to the pathways for cerebrospinal fluid circulation are reviewed and the significance of the roentgenological changes noted when cerebrospinal fluid is replaced by air is discussed. Changes from the normal occurring in the presence of obstructive lesions along the course of the fluid pathways are described and shown in illustrations.

Before an encephalographic study is attempted the case should be carefully studied neurologically to determine if possible whether the method is ind

cated or contra-indicated. When a tumor mass is present in the posterior fossa or there is obstruction to the outlet of fluid from the ventricles such as is present in internal hydrocephalus cerebrospinal fluid cannot be properly drained from the cranial cavity or air introduced into it. Under such circumstances encephalography is unsatisfactory and contra-indicated. Moreover it is dangerous as the intracranial pressure is usually increased and the withdrawal of spinal fluid may allow the brain to expand in the direction of the release of pressure so as to force the cerebellar hemispheres into the foramen magnum producing a hernia with pressure on the medulla and respiratory failure. This danger has led to the adoption of an arbitrary level of pressure above which encephalography is regarded as unsafe. Encephalography is contra-indicated when the spinal fluid pressure is above 20 mm Hg with the patient in the horizontal position and resting quietly. In properly selected cases the danger associated with the method is slight. In the authors' series of 117 cases there was only one death and this occurred three days after the procedure. In 1529 cases collected by the authors from the literature the mortality was 1.2 per cent and it was evident that in some of the fatal cases contra-indications existed or the condition of the patient did not warrant the procedure.

In cases of traumatic injuries including birth injuries encephalography has demonstrated unsuspected gross lesions. In cases of idiopathic and symptomatic epilepsy it has revealed gross atrophy in nearly every instance in which the symptoms had been present for a year. In cases of mental deterioration dyskinesia chronic headache vertigo and traumatic neurosis it has disclosed definite evidences of gross cerebral deformity. In cases of cerebral tumors it has made localization more exact and has determined a better selection of the operative procedure in the individual case. In the latter group its risk is undoubtedly higher than in any other group but is less than that of ventriculography and no greater than that of lumbar puncture with withdrawal of fluid for diagnostic purposes.

ADOLPH HARTUNG M D

Grothiers B Vogt E C and Eley R C Encephalography in Cases with Fixed Lesions of the Brain *Am J D Child* 1930 127

The authors limit the discussion to the cases of children with an anatomical defect or physiological perversion of the brain due to injury or infection of the nervous system.

They claim that conventional methods of examination and hospital observation fail to reveal or detect structural changes which may be present in such cases.

While they admit that the injection of air by the lumbar route is a formidable procedure they believe it is justified when a definite diagnosis is impossible without it. According to their experience it is not likely to aggravate the lesion. As a rule however there is a moderately severe reaction to it and in one of their cases death resulted nineteen days after the injection. Increased intracranial pressure is a contra indication.

The authors have found that encephalograms properly taken and interpreted give definite information of positive value in at least one half of properly selected cases. In the rest they establish negative facts of importance.

They believe that encephalography should be used before final judgment is passed on the future of children severely handicapped by fixed cerebral lesions unless less severe methods are adequate. However they are unwilling to base the diagnosis and prognosis on encephalograms alone.

LEO M. DAVDOFF M.D.

Coleman, C. G. Brain Abscess. A Review of Twenty Eight Cases with Comment on the Ophthalmological Observations. *J Am M Ass* 1930 xcv 568.

Abscess of the brain results from septic encephalitis and is not operable until encapsulation occurs. Success in the treatment depends on the removal of the localized infection without the production of extensive encephalitis.

The diagnosis is rarely made in the early stages but after encapsulation has occurred the nature of the condition is suggested by evidence of a localized intracranial disturbance following an infection of the mastoid or paranasal sinuses. The diffuse encephalitis is frequently obscured at first by the antecedent infection but persistence of signs of intracranial involvement after operation on the sinus or mastoid should arouse suspicion of its presence. In cases without a definite history of sinus infection but with bilateral involvement ventriculography may be helpful for diagnosis and localization of the abscess.

Choked disk has been found to occur with about equal frequency in brain abscess and brain tumor. Nerve head changes were noted before operation in sixteen of the twenty eight cases of cerebral and cerebellar abscess reviewed by the author. This finding indicates only an increase of intracranial pressure but may be valuable confirmatory evidence when a slow pulse, dullness and other signs of pressure are present.

Lillie states that progressive choking of the disk is an indication of the presence of active encephalitis and that the favorable time for operation is when the swelling has become stationary. However there is danger of rupture of the abscess when intracranial pressure becomes so high as to produce choked disk. There appears to be no relation between the size of the abscess and the degree of choking of the disk.

In the cases reviewed palsy of the ocular muscles was of little aid in the diagnosis except in the case of a comatose patient with a fixed dilated pupil.

The technique of operative treatment varies considerably with different surgeons. The methods used include the formation of an osteoplastic flap, single or repeated tapplings and excision of the overlying cortex to allow extrusion of the abscess wall. In cases of small deep thickly encapsulated abscesses even tapping with a ventricular needle is difficult and when there is a high intracranial pressure a subtemporal decompression may be necessary to prevent a fatal outcome from the rise in pressure. In all of the cases reviewed drainage with the eye end of a soft rubber catheter was attempted. In some instances more than one attempt was necessary before the catheter could be inserted. The author believes that the results of this method were better than could have been obtained by any other procedure.

E. S. PLATT M.D.

Stammers, F. A. R. A Study of Tumors and Inflammations of the Gasserian Ganglion. *Brit J Surg* 1930 xviii 125.

Seven cases of tumor and two of inflammatory lesions of the gasserian ganglion are presented with a review of the literature and a description of the development and anatomy of the ganglion.

The author places emphasis on the sequence of symptoms which makes the diagnosis of these lesions possible. The first symptom resulting from tumor involvement of the gasserian ganglion is pain in the fifth nerve area which is progressive in severity and persistence. It affects more than one division. Arising either simultaneously with the original onset of pain or very shortly afterward is a subjective alteration in sensation over the same area in the form of numbness or paræsthesia. At about the same time paresis of the masticatory muscles may develop. The subsequent symptoms depend upon the direction of spread of the tumor.

Section of the posterior root with removal of as much of the tumor as possible offers the best chance of relief.

ROBERT ZOLLINGER M.D.

## SPINAL CORD AND ITS COVERINGS

Beck, C. S. Chordotomy for Intractable Pelvic Pain. *Ann Surg* 1930 xcii 335.

Chordotomy (section of the anterolateral tract of the spinal cord) is recommended for the relief of any form of intractable pain in the abdomen, pelvis or legs.

The operation is not difficult. The level for the laminectomy varies with the case. As the fibers entering the cord ascend several segments before they cross to the contralateral side the operation must be performed several segments above the segment level of the pain. The highest level at which section of the anterolateral column can be made without involving the phrenic nerve is the level of the sixth cervical segment.

Two or three spinous processes are removed together with their laminae; the dura is opened throughout the length of the incision and the arachnoid is opened along the midline posteriorly. Retraction of the arachnoid exposes the dentate ligament and the posterior roots. The dentate ligament is grasped in a small clamp. Gentle traction upon the dentate ligament rotates the cord and exposes the anterolateral column. It is this column that carries contralateral pain and temperature fibers. These fibers lie in the area between the dentate ligament and the line marking the emergence of the anterior roots from the cord and extend to a depth of 3/4 mm. The knife is inserted into the cord at the dentate ligament to the mark on the blade (3/4 mm from the point) and carried forward to emerge at the exit of an anterior root.

Following division of the anterolateral tracts there should be complete loss of pain and temperature sense on the opposite side depending upon the level and depth of the section. The motor function and tactile, vibratory and postural perceptions are not impaired. The reflexes are preserved. No urinary difficulties occur after unilateral section.

The operation is best carried out under local anesthesia. The section can be repeated to obtain the desired height. Of nineteen cases reported by Peet, complete relief was obtained in sixteen, partial relief in two and complete but apparently only temporary relief in one.

The author reports one case in which chordotomy was done and reviews the history of the operation.

DAVID J. HANSTADT, M.D.

Dellem L. and Morel Kahn M. The Treatment of Syringomyelia by Roentgen Therapy. *J. S. Rg.* 93: 153.

The authors state that the beneficial effect of irradiation in syringomyelia has been recognized for a long time and that if the pathogenesis of syringomyelia were known the technique of irradiation treatment would doubtless be improved and its results would be better. It is generally held that the disease is due to the development of an intramedullary glomatous tumor. The authors attribute the beneficial effect of irradiation to greater radiosensitivity of the young, rapidly growing cells of the tumor as compared with the surrounding normal nerve tissue.

Of 159 cases treated with the X-rays which have been reported in the literature, 124 (79 per cent) showed improvement and in a few the improvement was so great that the term "cure" seemed justified. In 33 (21 per cent) the condition was either not alleviated or was aggravated. Of 15 cases treated by the authors, the condition was improved in 9 (60 per cent), remained unchanged in 1 (7 per cent) and was aggravated in 5 (33 per cent). In practically all of the cases in which improvement was obtained the symptoms had been present for only a relatively short period of time. When the period between the onset of the condition and the beginning of treat-

ment has been longer than ten years there is little prospect of a successful result. However, irradiation should be given even in such cases as it offers the only hope of benefit.

With regard to the technique of the irradiation, the authors emphasize that the treatments must be given over a long period of time (regression must not be mistaken for improvement) and that an area much larger than that in which involvement is revealed by the clinical examination must be treated.

CHARLES H. HEACOCK, M.D.

Fraser J. A Cystic Dermoid Tumor of the Spinal Cord. *S. & Gy. c. & Ob.* 93: 16.

In a review of the literature the author was able to find only thirteen cases of cystic dermoid tumor of the spinal cord. He reports such a tumor occurring in a male twenty-two years of age. The signs and symptoms led to the provisional preoperative diagnosis of posterior or posterolateral extramedullary meningeal tumor at about the level of the seventh or eighth thoracic segment.

At operation a silvery gray glistening tumor 4.5 cm. long and 0.7 cm. wide was found with its central long axis corresponding to the posterior median fissure of the cord. The cyst was easily enucleated.

Apparently it had existed for twenty-one years without causing symptoms. Disparity between the rate of growth of the cyst and body tissues probably explains why the cyst began to exert sufficient pressure on the posterior columns of the cord to produce symptoms.

ROBERT ZOLLINGER, M.D.

Kurtzborn A. Chronic Adhesive Spinal Leptomeningitis as a Condition for Operative Treatment (De Leptomeningitis adhaerens a h. m. a. sp. l. s. i. G. g. c. s. d. p. t. e. B. h. d. l. g.) *Z. f. Chir.* 93: p. 986.

The pathologico-anatomical picture of chronic adhesive spinal leptomeningitis shows morbid changes in the arachnoid and pia in the form of cellular infiltration with subsequent connective tissue transformation and thickening. Fresh cases often show visible edema with adhesions between the close meshes of the arachnoid on the one side and between the arachnoid and the pia or spinal cord on the other, in part localized in part spread diffusely over large areas of the spinal cord particularly in the dorsal and lumbar segments. At some places the changes consist chiefly of local cystic collections of spinal fluid.

In the cases operated upon by Kurtzborn there was complete or partial obliteration of the subarachnoidal space with obstruction of the flow of spinal fluid varying in degree but without actual sacculization of the fluid in the sense of cyst formation. The dura is for the most part entirely normal on its inner surface or shows at the most very fine adhesions to the arachnoid. There is therefore certainly a chronic isolated adhesive disease of the soft spinal meninges whereas in pachymeningitis the soft membranes are always uninvolved.

The author reports three cases in detail. The syndrome of spinal cord injury (spastic paresis sometimes with vesical and rectal disturbances and disturbances of sensation) varied in severity. In the first case the condition followed trauma with hemorrhage into the dural sac and in the second case it probably developed on the basis of a metastatic infection. In the third case the cause could not be determined.

Myelography is of particular value in this condition. The purpose of operation is to separate the adherent surfaces completely and with as little injury as possible. In very extensive processes it may be necessary to limit the intervention to the removal of the adhesions in the field which the urological findings and the myelogram show to be most affected. The prognosis for permanent cure must be guarded as it depends on whether all of the adhesions are removed, how far the secondary spinal cord injury is capable of retrogression and whether or not fresh adhesions will form. WANKE (Z)

#### MISCELLANEOUS

Jason A H Lederer M and Steiner M. Changes in the Spinal Fluid Following Injection for Spinal Anæsthesia. *Surg Gynec & Obst* 1930 li 76

Although spinal anæsthesia produces much less toxic effects than general anæsthesia it has certain

immediate and remote sequelæ which have not yet been satisfactorily explained.

The authors report an investigation undertaken to study the relation of changes in the spinal fluid to the sequelæ of spinal anæsthesia. The spinal fluid was obtained before and twelve hours after the introduction of the anæsthetic into the spinal canal. Cell counts including differentials and chemical tests including those for albumin, globulin and sugar were made. The colloidal gold reaction was studied and the sugar determined quantitatively. In addition neurological tests were made. Thirty one cases were thus investigated.

In 14 cases no red blood cells were found in the spinal fluid. Of these 11 showed a definite increase in the number of white blood cells, the counts ranging up to 800 cells per cubic millimeter. In 6 cases there was increase in the spinal fluid sugar averaging 37.3 per cent. There was no change in the albumin or globulin or the colloidal gold curve. Thirteen patients developed mild postanæsthesia sequelæ but there was no correlation between these sequelæ and the changes in the spinal fluid.

The authors conclude that the technique of spinal anæsthesia causes a mild meningeal reaction in some cases but does not produce serious organic changes manifested by alterations in the composition and constituents of the spinal fluid. They do not explain the cytological changes or the sugar.

ALBERT S CRAWFORD M D

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Warren S L A Roentgenological Study of the Breast 1m J R entlg 1 1930 x 1 1 3

Following Cutler's description of the study of pathological changes in the breast by transillumination it occurred to Warren that the same changes of density might be recorded on a roentgenogram with the additional advantages of a stereoscopic technique and a permanent record. In this article Warren describes the technique employed in 119 cases over a period of three years. Stereoscopic roentgenograms of both breasts were made in every case.

As the anatomical structures vary in density the nipple, areola, ducts, septi, lobules, and fat can be identified. Abnormalities in the roentgenograms correspond very closely to the gross pathological changes. Warren was able to recognize breast abscesses, chronic mastitis, and benign and malignant tumors from their roentgen appearance. The greatest difficulty encountered was in differentiating between certain cases of chronic mastitis with dense infiltrating inflammatory areas and early scirrhous carcinoma. The value of the method is attested by the fact that only 8 errors were made in 86 cases of which 43 were definitely proved by operation or autopsy. Several of these errors were made early in the work.

Thirty-three cases were studied following treatment with radium and the roentgen rays. Immediately after the treatment or during the reaction the deeper tissues showed a diffuse haziness due to congestion and edema. Later in the favorable cases only the connective tissue framework of the tumor could be visualized. CHARLES H. HEACOCK, M.D.

Brancati R. Fat Necrosis of the Breast (La necrosi del grasso del seno) 4 h tal d ch 93 1 58

The author briefly reviews the literature on fat necrosis of the breast and reports three cases. Fatty tumors constitute 7 per cent of benign tumors of the breast. Necrosis of a fatty tumor may be caused by trauma, a circulatory disturbance, bacterial infection, chemical action, the action of a blood-borne lipase, or a metabolic disturbance associated with obesity. It is most common in obese women between the ages of twenty and fifty years.

The author describes the pathological anatomy in detail. The condition may occur in any part of the breast but appears most often in the premammary fat following a direct injury, hypodermolysis, exposure to excessive heat or cold, or X-ray treatment. The tumor may or may not be adherent to the surrounding tissues. Pain and constitutional symptoms are absent.

The diagnosis is difficult because of the great similarity of the lesion to carcinoma. Conditions to be differentiated include tuberculosis, lipoma, adenoma, chronic interstitial mastitis, cystic mastitis, and gumma. Microscopic examination is usually necessary. The prognosis is good. In most of the cases reported a radical operation was done because an erroneous clinical diagnosis was made. When the diagnosis is certain the tumor may be allowed to regress spontaneously or may be excised locally.

In two of the author's three cases radical surgery was done because of an erroneous diagnosis of carcinoma. In one a correct diagnosis was made and a cure obtained by local excision.

A. LOUIS ROSE, M.D.

## TRACHEA, LUNGS, AND PLEURA

DeBenedetti E. The Pleuropulmonary Complications of Abdominal Diseases. Postoperative Pulmonary Complications (Le complicanze polmonari delle malattie addominali. Le complicanze polmonari postoperatorie). A h tal d ch 193 xvi 54

The author discusses the pulmonary complications of abdominal disease other than frank suppurations. He refers especially to diseases of the structures of the upper part of the abdomen. The functional complications include cough and dyspnea, and the anatomical complications pulmonary congestion, bronchitis, pleurisy, atelectasis, and mass collapse of the lung. Several cases are reported.

A study of the pathogenesis of these complications requires a consideration of the anatomical connection between the abdominal and thoracic organs by way of the blood, lymph, and nervous systems, especially the vegetative nervous system.

Complications of an infectious nature are well explained on the basis of extension through the blood and lymph streams. It is noted that such complications occur more frequently after operations on the peripheral structures of the body which drain through the systemic venous system directly to the lungs than after operations on parts of the abdomen which drain through the portal system. However, lung infection may be favored also by reflex impairment of pulmonary mobility, circulation, and elastic tone.

Non-infectious complications are the result of changes within the lung caused by reflexes through the vegetative nervous system. The author discusses the close connection of the upper abdominal organs and the lungs through this system. The mechanism of the development of non-infectious pulmonary complications from abdominal conditions lies principally in disturbances of vasomotor

and bronchomotor tone. The degree of change is directly proportional to the intensity of the afferent stimulus. Certain pulmonary complications may be produced experimentally by the production of visceral reflexes.

Postoperative complications in the lung may be the result of stimulation of the splanchnics by the trauma of operation. The rich distribution of the nerves in the upper abdomen accounts for the greater incidence of complications following operations in this region than in other regions. Although the anæsthetic may play a rôle the principal problem for the future is the reduction of surgical trauma.

A. Loms Roser, M.D.

**Razemon P.** The Experimental Production of Pneumonia and Lung Abscess by Intravenous Inoculations After Phrenicectomy (Production expérimentale de pneumonies et d'abcès du poumon par inoculations intra-veineuses après phrénicectomie) *Arch. méd.-chir. de l'appar. respir.* 1930, 32.

It is generally believed that postoperative pulmonary infection comes from the operative field and is favored by temporary reduction of the pulmonary excursion. To determine the influence of paralysis of the diaphragm, Razemon performed experiments on rabbits and guinea pigs in which after the intravenous injection of colon bacilli he sectioned one phrenic nerve. Immediately after section of the phrenic nerve the involved half of the diaphragm rises and then rapidly becomes lower than the other half. Rabbits and guinea pigs were chosen for the experiments because their respiration is exclusively abdominal and the colon bacillus was chosen for the intravenous injections because by means of this bacillus pulmonary lesions are most easily provoked.

When a sufficient dose of organisms was injected hepatization or milary abscesses constantly appeared in the lung on the side on which the phrenicectomy had been done. When the dose was excessive the animals died of septicæmia and when it was inadequate no lesions were observed. The lesions were analogous to those observed in postoperative infections in man, allowance being made for the differences in the type of exudation which is peculiar to rabbits and guinea pigs.

The absence of lesions in the control animals showed that phrenicectomy alone is insufficient to produce pulmonary infection.

The paralysis of the diaphragm probably reduces the resistance of the lung and favors lodging of the organisms by slowing the pulmonary circulation. In man accidents have been observed after phrenicectomy for bronchiectasis, tuberculosis and lung abscess (Sergent, Guillemet and Lowenthal). However the retention of secretions is a factor. Accidents never follow when the diaphragm becomes elevated after the operation.

The experimental findings cited favor the theory that postoperative pulmonary complications are due in considerable part to the relative immobilization

of the diaphragm which follows laparotomies particularly those of the upper abdomen. It has been shown that for a time the vital capacity may be reduced 30 per cent (Churchill and MacNeil).

ALBERT F. DE GROOT, M.D.

**Grellety, Bosviel P.** The Value of Measuring the Venous Pressure in the Course of Artificial Pneumothorax (De l'utilité de la mesure de la pression veineuse au cours du pneumothorax artificiel) *Presse méd.* Par. 1930, xxxviii, 1105.

In most patients treated by pneumothorax the heart supports unilateral or even bilateral pulmonary collapse remarkably well and the venous and arterial pressures remain unchanged. Today pneumothorax is not maintained to positive pressures and massive injections of from 700 to 1,200 c.c.m. are no longer used. With the technique now employed cardiac disturbances have become more infrequent than in the past. Measurement of the venous pressure rather than the arterial pressure, especially in cases of pneumothorax on the right side, allows the discovery of an unsuspected cardiac compression which may be easily avoided by spacing and reducing the insufflations.

In pneumothorax with rigid walls, with adhesions restricting the heart or complicated by pleurisy, and in partial pneumothorax with fusion, an increase of the venous pressure will indicate, according to its constancy, a temporary mechanical disturbance which will disappear when the pneumothorax is relaxed or thoracentesis is performed or a lasting mechanical disturbance due to the presence of pleurocardiac fusion or a certain degree of myocarditis. In the course of pulmonary perforations the venous pressure gives exact information regarding the condition of the heart.

In a subject treated by pneumothorax the arterial pressure measured by the Vaquez-Lauby and the Pachon methods to find the degree of the oscillographic index gives interesting information regarding the tonus of the heart and vessels and hence regarding the general condition, but it is the venous pressure which furnishes the most exact data with regard to the manner in which the heart supports the pulmonary collapse.

In the author's studies the determinations of venous pressure were made an hour before and an hour after the insufflation. The insufflation never exceeded 400 c.c.m. In most cases there was no or only slight acceleration of the pulse and respiration. Of 210 subjects with unilateral pneumothorax which had been maintained for from several months to several years, 83 per cent had no change in the venous pressure and only 15 per cent a temporary or permanent elevation of this pressure. Except in aged subjects with sclerotic lesions an increase in the venous pressure in pneumothorax is due not to disturbance of the penetration of the blood in the collapsed lung but to compression of the cardiac cavities and their vessels (venæ cavae, pulmonary artery) by excess insufflated air, pleurisy or pleuro-



pulmonary sclerosis with attraction of the mediastinum

In the majority of a large number of patients treated by Sergeant there was no increase in the venous pressure when the terminal intrapleural pressure was negative. However in 10 of 12 cases in which insufflation was followed by dyspnoea, flashes of heat or palpitation the venous pressure was raised from 15 to 18 cm although the pleural pressure was negative. When the amount of air insufflated was decreased the venous pressure became normal.

In cases of even very marked dextrocardia and sinistocardia the venous pressure was usually normal. Deviation of the mediastinum toward the diseased side is found in pneumothorax with adhesions. In such cases measurement of the venous pressure will disclose the presence of cardiovascular disturbances before they are manifested by clinical signs.

In 2 cases in which the pneumothorax was partial and the venous pressure elevated the venous pressure became normal after the insufflations were stopped. In 3 cases in which relaxation of the pneumothorax did not change the venous pressure the prognosis was unfavorable because of the probable existence of a certain degree of mediastinitis or myocarditis.

In the cases of 2 tuberculous women in whom bilateral pneumothorax was induced by the injection of 150 ccm of air on each side in the first days of the puerperium the venous and arterial pressure determined before and after the induction of the pneumothorax were the same. In 2 cases in which bilateral pneumothorax was induced in a period of fifteen days with insufflations of from 300 to 400 ccm of air on each side the venous and arterial pressures, the pulse and the respiration were not noticeably changed at the third insufflation when the total surface of the lungs had been reduced one half. Of 4 cases in which bilateral pneumothorax was maintained for more than a year the venous pressure was normal and the arterial pressure low in 3.

Effusions and pleuropulmonary sclerosis even though with mediastinal traction are quite often well supported but when dyspnoeic symptoms appear it is an error always to consider the patients as subjects of pulmonary disease alone and to overlook the heart condition. The author reports 5 cases of spontaneous pneumothorax and 3 of perforation in the course of therapeutic pneumothorax (2 momentary and 1 with a valve fistula). From these he draws the following conclusions:

1. Sudden irruption of air into the pleura producing total pulmonary collapse even when it occurs on the right side may have no effect on the venous and arterial pressures.

2. A momentary perforation in the course of therapeutic pneumothorax seems to produce no change in the venous and arterial pressures.

3. In a case of large fistula associated with a pleural pressure about 0 the arterial and venous pressures are not changed.

4. The venous pressure rises when there is extensive effusion or when the intrapleural pressure is markedly positive (valve pneumothorax).

5. Elevation of the venous pressure is due most often to a purely mechanical cause such as compression of the caval vessels, the pulmonary artery or the right cavities of the heart. In some cases involvement of the myocardium may be added.

In the cases of 2 young girls with mitral stenosis who presented no cardiac symptoms the venous pressure remained normal during pneumothorax treatment.

In some cases of pneumothorax the roentgenoscopic examination of the heart and its vessels is quite difficult and becomes almost impossible when pleurisy or pleuropulmonary sclerosis develops. Under such circumstances measurement of the venous pressure combined with that of the arterial pressure will be the best means of determining cardiac function. The electrocardiogram is a much more accurate index of the deviation of the heart than the orthodiagram. In the study of 30 cases Grellety Bosviel found marked displacements of the heart well supported. PACR

Léon Lindberg M and Monod R. The Surgical Indication in Pulmonary Suppuration as Presented in Three Cases (Les indications chirurgicales de la suppuration pulmonaire à propos de trois cas). *Bull. mém. Soc. méd. d. H. p. d. P.* 1933, 21, 643.

The authors state that they have gradually come to realize the inadequacy of most medical measures in cases of pulmonary abscess and to regard surgical interference as the treatment of choice.

The problem at present is to determine the operative indications and the type of operation to be performed in a given case.

Two types of lesion must be distinguished: localized abscess and diffuse suppuration (pyosclerosis of Coquelet). These two lesions indicate two types of operation: the first, pneumotomy and drainage; and the second, excision. Two illustrative cases are cited.

The first case was that of a robust and very active man thirty-five years of age who was taken with violent chills and high fever. Because of the absence of definite local signs treatment for influenza was given. There was a mucopurulent expectoration which was said to be usual with the patient as he had suffered for years with asthmatic attacks. By the sixteenth day the clinical picture was that of an extremely grave general infection and slight dullness could be detected on the right side just below the clavicle. X-ray examination showed a large cavity containing fluid and air in the middle portion of the lung and extending to the axilla and clavicle.

Operation for the establishment of drainage was held indicated not because of the size of the

cavity but because of the gravity of the infection. The operation consisted of two stages—preparation of the chest wall and incision of the lung. In the first stage liberal resections were performed on the second and third ribs and deep sutures placed through the lung and pleura at the angles of the incision. The breach was then packed with gauze and a metallic suture introduced to serve as a guide for subsequent roentgenograms. In the second stage of the operation which was performed eight days later after pleural adhesions had formed the lung was opened with an electric knife. The incision led to the floor of a large abscess. Convalescence was complicated by gangrenous inflammation in the cavity and acute nephritis with edema but a complete cure resulted.

The second case reported was that of a man thirty years old who was also seized suddenly with chills and fever. The character of the sputum indicated a pulmonary abscess but both the physical and X-ray findings indicated simply a consolidation of the left lower lobe. Serotherapy injections of neosalvarsan and trypanflavin and bronchoscopic treatment were followed by periods of improvement but as aggravation of the disease continued operation was decided upon. The chest wall was prepared as in the first case except that in this instance the eighth ninth and tenth ribs were resected. When the lung was opened in the second stage the lower lobe was found occupied by innumerable gangrenous pouches between which were bands of sclerosis. Slices were removed from the lobe with the electric knife. After a series of six operations in which the entire lower lobe was removed a complete cure was obtained.

In a third case in which there was a very large pulmonary abscess without extremely grave general symptoms expectant treatment was followed by complete recovery in six weeks.

The authors have little confidence in anti-gangrene serum or other remedies and have found bronchoscopy phrenicotomy and pneumothorax usually inadequate. They state that in about 30 per cent of cases recovery results spontaneously. In the absence of serious general symptoms operation may be delayed but the delay should not exceed eight weeks.

For the treatment of diffuse suppurations numerous operative procedures have been suggested. The one stage lobectomies of Lihenthal and Robinson have a mortality of from 40 to 50 per cent and under many circumstances cannot be performed. Cauterization in several stages according to Graham's technique is a more promising method but is a rather blind procedure and frequently followed by the general symptoms associated with a burn. By means of the electric knife excision of the lung may be realized in stages without great risk and with precision.

For all of their chest surgery the authors employ general ethyl chloride anæsthesia.

ALBERT F. DE GROAT, M.D.

**Papin F.** External Bronchial Fistula Following Operation for Hydatid Cyst of the Lung (Les fistules bronchiques extérieures après opération pour kyste hydatique du poumon). *Bordeaux ch r* 1930 No 1 3

Fistula is an uncommon sequela of operation for hydatid cyst of the lung. In 229 cases reported by Gumbellot in which such an operation was performed this complication developed only 9 times. The fistulae were of the bronchocutaneous type (that is to say without an intermediate pouch) and caused little or no inconvenience to the patient. Only 1 fistula was operated upon. The mildness of the disturbances caused by the fistulae is due to the fact that the bronchus involved is usually small, most hydatid cysts being located in the periphery of the lung.

Bronchial fistulae communicating with the exterior through a cavity present the same pathological changes and problems of treatment as those following empyema or lung abscess. The special dangers lie in the persistently suppurating cavity.

In a third type of bronchial fistula the bronchus communicates with a cavity and there is no external opening.

In hydatid infection of the lung a communication exists between a bronchus and the hydatid cyst before operation is performed. The important factor in the failure of a fistula to close is probably the state of the capsule immediately about the wall of the mother cyst. When the capsule is sclerotic collapse of the cavity is hindered.

Most simple bronchocutaneous fistulae close spontaneously after from a few months to a year and a half. When they demand operation a cone of cicatricial tissue may be resected and the fistula closed by a pursestring suture and covered by a flap. In order to prevent tension the flap should be sutured only partially.

When a cavity exists the treatment usually indicated is that of chronic empyema, i.e. thoracoplasty. Occasionally however cavities have been successfully filled with muscle flaps and omentum (Lardennois).

ALBERT F. DE GROAT, M.D.

**Kramer R.** Adenoma of the Bronchus. *J. Biol. Med.* 1930 11 689

Kramer has been able to find only five cases of bronchial adenoma reported in the literature. The tumor has its origin in the ducts of the mucous glands. The treatment indicated is endoscopic surgical removal if this is feasible, radium implantation, coagulation or a combination of these methods. Kramer reports two cases giving the findings of microscopic examination of the tumors and the results of treatment.

CARL R. STEINKE, M.D.

**Foster L. C.** The Treatment of Acute Empyema Thoracis. *Ann. Surg.* 1930 91 212

A diagnosis of empyema does not necessarily constitute an indication for immediate operation. Sudden change from a normal negative intrathoracic

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Barnett F W Painful Postoperative Abdominal  
Scars 1 of 5 193 1 39

The author believes that abdominal incisions are responsible for injuries to nerves with subsequent neuroma formation or neuritis more frequently than is generally supposed and that such injuries are often diagnosed as postoperative adhesions. The injuries are probably often caused by ligation of nerves with blood vessels.

The diagnosis of neuroma may be made by testing out the sensory distribution of the nerve and by temporarily blocking the nerve by injecting procaine hydrochloride. In right rectus incisions the nerve blocking is accomplished by injecting the procaine beneath the fascia of the right rectus muscle.

Incisions for abdominal posture should be planned to avoid trauma to nerves. The tendency has been to attempt to follow muscle planes and frequently to sacrifice nerves although it is known that in the absence of infection muscles heal well.

The author believes that whenever possible incision through the right rectus muscle should be avoided. If the surgeon prefers an incision on the right of the median line for exploration or for better approach to the appendix the Kammerer modification, preferable to the usual right rectus incision. When the rectus is drawn to the medial side the nerves can be easily identified and retracted up and down so as to allow satisfactory exposure and if sacrifice of a nerve is necessary it can be done under the eye without unnecessary ligation. More or in this type of incision deep epigastric vessels are not encountered therefore the risk of less bleeding.

Upper or lower paramedian incisions are satisfactory because they do not encounter vessel or nerves of much importance.

The McBurney and the low infraumbilical incision are ideally planned to avoid trauma to the nerves. The Kocher incision for exposure of the gall bladder is associated with the risk of injuring nerves but the danger is less than that associated with the right rectus incision.

Transverse abdominal incisions extending either to or through the rectus muscles encounter fewer nerves than lateral vertical incisions.

HOBART A McKENRY M D

Gillie W E and L Mesure A B Late Results  
of the Lining Suture Operation in Ventral and  
Inguinal Hernia 1 of 5 193 1 39

The authors review the results of nearly 200 operations in which they used strips of fascia lata in the repair of hernia. The operations were such as to give

the method the severest possible test. The first 50 cases were those of soldiers who had a recurrence after 2 or 3 operative attempts at cure. The known failures so far number only 6. In 1 case a recurrence had developed within ten days showed that it is very important to secure the ends of the fascial strips with fine silk. In direct hernia in which the sutures must bear the brunt of the strain the spaces between the sutures must be small to prevent protrusions. One of the failures was due to infection. In many of the cases the correction of the hernia was extremely difficult and would have been impossible by any other method. The authors have deviated little from their original technique.

HARRY W FARR M D

Napier T Occult Epigastric Hernia (Hem-  
ipnatic) 1 of 5 193 1 39

Among seventy-seven surgically treated cases of hernia through the linea alba in the epigastrium there were fourteen (two of those of men) in which the prolapsed fatty tissue did not penetrate through the aponeurosis but entered the latter through internal fissure and assumed a interstitial position. Hernia of the latter type may be called occult epigastric hernia.

The clinical symptoms of occult epigastric hernia are analogous to those of manifest epigastric hernia—pain due to pressure or movement, dyspeptic manifestations or colicky pain. The difference between occult epigastric hernia and manifest epigastric hernia consists only in the absence in the former of a palpable tumor.

The incision for the reduction of the occult epigastric hernia is a straight median incision from the episternal process to the umbilicus. After the viscera have been carefully examined to be sure that they are in good condition the opening in the aponeurosis should be carefully inspected as tag of the properitoneal fat and the fat of the ligamentum teres tend to intrude here. These tags must be removed and the linea alba reinforced by overlapping the anterior wall of the rectus sheaths. This treatment gives good and permanent results.

M P R (L)

Lacey J T The Prevention of Peritoneal Adhesions by Amniotic Fluid 1 of 5 193 1 39

Lacey reports the results of ninety-eight cases in which amniotic fluid in the prevention of peritoneal adhesions which were carried out on thirty-five rats and seven dogs. In the first group of experiments a number of areas on the small intestine about 1 cm long were scarified with a knife blade. In the second group the entire small intestine and the cæcum were rubbed with gauze in a third group

minimal trauma was produced by rubbing with gauze three points on the intestine about  $\frac{1}{2}$  cm long in a fourth group chemical peritonitis was produced with tincture of iodine in a fifth group the trauma produced in the third group was repeated for study of the time and mode of the formation of adhesions and in a sixth group enterotomy was done.

In only two of twenty six animals treated with amniotic fluid which survived for a sufficient period was complete absence of peritoneal adhesions observed.

Smears taken from the peritoneum twenty four seventy two and one hundred and twenty hours after the trauma showed a reduction in the number of red blood cells and an increase in the macrophages especially those of the polyblast type in the treated animals.

It appeared that the amniotic fluid had no undesirable effect on catgut suture lines and that it did not prevent the formation of protective adhesions.

The author draws the following conclusions:

1. Amniotic fluid is apparently harmless when introduced into the peritoneal cavity.

2. It seems to lessen the ooze from denuded surfaces and to stimulate the peritoneum to a more powerful defense reaction.

3. It cannot be depended upon to prevent adhesions although it possibly may modify their density.

**Mathieu P and Marchand G. Early Surgical Intervention in Acute Pneumococcal Peritonitis and Its Results.** (*L'interent on chirurgicale precoce dan les peritonites aigues a pneumocoques et ses resultats*) *Bull et me m S nat d ch* 1930 1 894

The authors report a case of acute pneumococcal peritonitis in a woman thirty three years of age to show the difficulty of diagnosis in the first few hours. In the cases of children an error in diagnosis is made even more frequently than in the cases of adults. After early operation in peritonitis due to pneumococci death frequently occurs within from twenty four to forty eight hours. If recovery takes place it is often preceded by long continued suppuration, persistent fever and pyemic conditions such as pericarditis or purulent pleurisy.

Acute pneumococcal peritonitis in its typical clinical form can be diagnosed if the patient is a girl from two to ten years of age. The beginning is often sudden with diffuse abdominal pains and vomiting, a rapid rise in the temperature, abundant vomiting and early and abundant diarrhoea (from ten to twenty stools a day).

There are cases in which the definite localization of the abdominal pain on the right side will lead to the diagnosis of appendicitis. Under such circumstances operation is performed early. If the appendix appears normal the pus should be examined for pneumococci. Davioud and the authors suggest extensive drainage as well as anti infection therapy.

Early laparotomy does not always prevent secondary localization of the pneumococcal pus.

The means of diagnosis provided by the laboratory can rarely be utilized in emergency cases but examination of the blood for the pneumococcus is of great aid.

In the discussion of this report Picot agreed with the authors regarding the difficulty in the diagnosis between acute peritonitis with pneumococci and acute appendicitis in the first hours but stated that acute cases should be operated upon and if the appendix is seen to be normal a large drain may be inserted in the cul de sac of Douglas. There should be no exploration and the operation should be reduced to the minimum. Large amounts of anti pneumococcus serum should be injected through the drain and under the skin.

In concluding the discussion Mathieu stated that he has encountered two types of cases—those in which the peritoneal suppuration was abundant from the first and those in which it was unperceived in the course of an incision for appendicectomy.

PACE

## GASTRO INTESTINAL TRACT

**Ploos van Amstel P I. Acute Dilatation of the Stomach and Trauma (Akute Magenverweiterung und Trauma).** *Mit a d Gren geb d Med u Chi* 1930 1 627

Acute dilatation of the stomach following trauma has not been described frequently in the literature. The author reports two cases because they show the particular circumstances necessary for the development of the condition and the extraordinary effectiveness of the Schnitzler treatment.

The first case was that of a twenty one year old girl of the Basedow type with a scrofulous and nervous appearance and definite enteroptosis who complained frequently of distention in the gastric region and belching symptoms which definitely indicated vagotonia. While cleaning she fell from a low ladder striking the stomach region against the back of a chair. She immediately became ill and within fifteen minutes the epigastrium was greatly distended. She vomited profusely although she had drunk only a cup of tea that morning. Within a short time her pulse was small and irregular and her respiration superficial. A diagnosis of acute dilatation of the stomach was made. When the patient was placed in the prone position recovery resulted rapidly.

The second case was that of a twenty three year old patient with vagotonia who developed gastric dilatation after receiving a punch in the region of the stomach. In this case also the assumption of the prone position was quickly followed by recovery.

As the conditions to which acute gastric dilatation has been ascribed are most varied it seems justifiable to assume that they are merely the exciting factors rather than the basic cause. The dilatation occurs only in persons with a disturbance of the vegetative nervous system. In the presence of such

a disturbance it may follow a blow in the gastric region a heavy meal the application of a plaster corset anaesthesia ureteral catheterization the insertion of an indwelling catheter gastro enterostomy or an operation for abdominal hernia

Early diagnosis which is most important is not difficult The symptoms are meteorism of the epigastrium with flatness of the rest of the abdomen bilious but never faeculent vomiting followed by a change in the distention great thirst anuria dryness of the tongue a change in the appearance of the eyes cyanosis superficial breathing a small pulse a subnormal temperature and coldness of the extremities

The only effective treatment is the adoption of the prone position as advised by Schnitzler

STREISSLER (7)

Clifford M and Amy P Certain Gastric Disorders I  
Hæmorrhage Regurgitation Which Little Is  
Known (Diquiqui hémogastrodéa-  
mal) J. 1 93

The authors discuss the types of hæmatemesis and melæna which for want of a clear conception of their cause are commonly designated as idiopathic neuropathic or primary They state that investigations have shown these hæmorrhages to be due frequently to circulatory disturbances brought about by abnormal conditions in regions adjacent to the digestive tract Among the most common causes are disturbances in the gastrosplenic circulation due to disease of the spleen and congestion surrounding the gastro intestinal tract brought about by adhesions anomalies of the colon colonic stasis an improperly performed appendectomy chronic appendicitis or an ill advised operation

HALL C M C M D

Camp J D Furth Observation on the Direct  
Roentgenological Signs of Gastrojejunal and  
Jejunal Ulcer R. 1 93 74

The diagnosis of gastrojejunal or jejunal ulcer is one of the most perplexing that the roentgenologist is called on to make as the examination involves structures that have been changed by surgical intervention Atypical operations may complicate the usual appearance and suggest a lesion when none is present

Pathologically gastrojejunal and jejunal ulcers simulate in form the usual types of gastric ulcer Of a series of cases seen at the Mayo Clinic in which a secondary operation following gastroenterostomy was required jejunal ulceration was found in sixty one stomal ulceration in forty eight and gastrojejunal units without actual ulceration in eight

The direct roentgenological signs which individually permit positive diagnosis of gastrojejunal or jejunal ulceration are the presence of an ulcer niche persistent deformity of the stomach stoma or jejunum the presence of a gastrojejunocolic fistula and closure of the stoma The significance and

frequency of a niche or crater in the jejunum or stoma as a positive sign of ulceration is often underestimated The niche is undeniable evidence of disease and may be seen in about 60 per cent of cases Deformity of the stomach stoma or jejunum produced by the associated inflammatory reaction is the most common change accompanying a gastrojejunal or jejunal ulcer The deformity of the stomach usually seen with ulceration at the stoma appears as a puckering of the gastric contour about the site of the opening with deformity of the rugæ When the lesion is wholly within the jejunum deformity of the stomach may be absent Deformity of the jejunum may be localized or diffuse It occurs most commonly in cases of jejunal ulcer but may be associated in lesser degree with ulceration at the stoma In the absence of a malignant lesion the presence of a gastrojejunocolic fistula is evidence of preceding jejunal or gastrojejunal ulceration Because of the high incidence of this complication and the risk attending the operation for its cure early recognition of the causative lesions is of considerable importance Complete occlusion of a previously functioning gastroenterostomy opening in the absence of malignant disease is prima facie evidence of gastrojejunal ulceration

Since a positive diagnosis is based on evidence of malfunction or the demonstration of abnormality in the outline of the stomach stoma or jejunum the examiner must assume that in the beginning the gastroenterostomy opening was anatomically correct and functioning properly A knowledge of the surgical technique employed in the particular case is of considerable assistance

The signs referred to have been the basis for the roentgenological diagnosis of jejunal and gastrojejunal ulcer at the Mayo Clinic for a considerable time The progressive improvements in fluoroscopic technique increasing familiarity with the niche shadow and better appreciation of the pathological changes and the complications of these lesions are reflected in the increased percentage of successful diagnoses

Wiss A G and Hubner C The Pathogenesis of  
Gastrointestinal Ulcer (S. 1 p. 146)  
1 93 8

The authors report experiments performed on dogs in an attempt to discover the cause of gastro duodenal ulcer In the first series deactivation of all of the alkaline fluid of the duodenum was obtained by sectioning the duodenum below the pancreatic duct and anastomosing it to the terminal ileum The effluent end of the duodenum was anastomosed to the stomach by end to end suture Ulcers developed at the point where the gastric juice expelled by the contractions of the stomach came in contact with the mucous membrane of the duodenum It appeared at first that the lesions might be explained by Boldyreff's theory that gastric ulcer is the result of interference with neutralization of the acid gastric

juice by the reflux of duodenal fluid into the stomach. However in examining the gastric juice before and after their operations the authors found that there was little difference in the acidity. They believe that the duodenal reflux is not great enough to neutralize the gastric juice and serves merely to give the mucous membrane an alkaline coating which protects it. They conclude that the ulcers in the experimental animals developed as the result of the elimination of this coating by the operation.

In the second set of experiments derivation of the bile alone was obtained by sectioning the common duct between two ligatures and anastomosing the gall bladder to the ileum 30 or 40 cm. from the caecum. By this procedure no disturbance of calcium metabolism was brought about such as would be caused if the bile were allowed to flow out through a bile fistula. The operation was followed by acute inflammation of the mucous membrane of the antrum and duodenum a sort of preulcerous stage.

These experimental conditions are rarely if ever found in man a fact explaining why chronic ulcer generally develops much more slowly in clinical cases than in the experiments reported. The cause of disturbances of the duodenal reflux in man has not been discovered but it is known that the motility of the human intestine is very easily disturbed. Ulcers generally occur in persons with defective alimentary hygiene persons who drink alcohol to excess or over eat and nervous persons in whom the least irregularity in diet affects peristalsis. Constant irritation of the walls of the stomach and duodenum upsets normal motility.

Extensive gastrectomy seems to be the best treatment for ulcer because it removes a large part of the mucous membrane of the fundus which is acid so that alkaline protection is brought about more easily. Pean's technique is better than the others because it favors the free reflux of alkali by shortening the distance between the stomach and the papilla of Vater. The authors have never seen a recurrent ulcer after free resection followed by anastomosis by the Pean or Billroth I method.

AUDREY G. MORGAN, M.D.

Konjetzny G. E. The Inflammatory Basis of the Development of Typical Ulcer of the Stomach and Duodenum (Die entzündliche Grundlage der typischen Geschwüersbildung im Magen und Duodenum). *Ergbn. d. inn. M. d. Kinderh.* 1930. v. 11. 184. 1930. Berlin: Springer.

This report is based on a minute examination of more than 500 resected specimens. After reviewing various theories of ulcer development (the chemical theory of Virchow the infarction theory of Hauser and the traumatic theory of von Bergmann) the author discusses in detail the inflammatory theory which he accepts. His most important conclusion is that the typical ulcer of the stomach and duodenum begins as an erosion of the mucosa.

In the solution of the ulcer problem there are 2 important questions to be answered: 1. Does the

gastrointestinal ulcer arise in normal or already diseased gastric and duodenal mucosa? 2. Is the ulcer a simple peptic corrosive defect as believed by Virchow, Hauser and von Bergmann or is it an inflammatory ulceration preceded by inflammation of the mucosa?

In the anatomical study of gastric resection specimens which were fixed while still warm the author and his coworkers always found a more or less pronounced gastritis. This was most pronounced in the antral portion. Also in specimens of duodenal ulcer they found gastritis in addition to the duodenitis. Moreover in cases of ulcer of the stomach duodenitis is often present in addition to gastritis. The gastritis is most pronounced in the region of the pyloric glands. It is usually marked also in the contiguous glandular region of the fundus whereas in the rest of the glandular region of the fundus there are few or no gastric changes.

The most important question to be answered is whether the gastritis and duodenitis are primary or secondary conditions. Their primary nature is suggested by the fact that the mucosa affected by acute or subacute gastritis nearly always shows superficial inflammatory defects (erosions) which are undeniably the result of inflammation of the mucosa. That acute and chronic ulcers may develop from these inflammatory defects was proved by the author's material which clearly showed all stages of development of the typical gastric ulcer from the initial erosion to the first stages of chronic ulcer. Absolutely convincing were the cases of ulcerous gastritis and duodenitis in which chronic ulcer was absent and the stages of gradual transition between the inflammatory erosions and acute ulcers were noted. The author was unable to discover in the erosions any evidence of an action of gastric juice or of a role played by anæmic necroses, hæmorrhagic infarcts, epithelial necroses or superficial eschars. He draws the following conclusions:

1. The first phase of ulcer formation has no relation to infarction.

2. Gastroduodenal ulcer never develops in a normal gastroduodenal mucosa. It develops always on the basis of a gastritis or duodenitis.

3. The latter conditions must be considered the anatomical basis of the typical clinical symptoms of ulcer.

Konjetzny next takes up the question as to whether the gastric juice can attack living tissues and thereby play an important rôle in the development of erosion and ulcer. He concludes that in the origin and development of erosion an effect of the gastric juice in the sense of corrosion or digestion cannot be demonstrated. Even in cases with clinically demonstrated hyperacidity he has never been able to find any indication that the gastric juice is able to corrode or otherwise injure the living epithelium or that such a corrosion or escharotic action can produce an inflammatory condition of the mucosa. Moreover he found erosions similar to those under discussion in parts of the intestinal

tract which are inaccessible to the action of the gastric juice

In the treatment of ulcer the chief essential is not neutralization of acidity by the administration of alkalies but the relief of the inflammatory changes of the mucosa and the muscular disturbances resulting therefrom in other words the therapy of ulcer is the therapy of gastritis This is true particularly in the early stages of the disease Proper medical treatment (a bland diet antacid remedies etc.) instituted at the right time is unquestionably the best prophylactic treatment of typical chronic ulcer In the chronic phases of the disease a cure by internal medicine is practically hopeless

NEUBERT (J)

Saunders E W A Bacteriological and Clinical Study of Gastric Ulcer *Am J Surg* 93

Facts indicating that the cause of ulcer of the stomach is infection are summarized by the author as follows

1 A streptococcus has been isolated from nineteen resected gastric duodenal and gastrojejunal ulcers and proved to be identical and specific by different cultural tests and by agglutination of its agglutination and agglutinin absorption

2 Its agglutinogenic and antigenic identity with similar strains producing ulcers of mucous membrane and skin and its identity with strains from foci of infection and appendicitis and cholecystitis have been demonstrated

3 Patients suffering from gastric ulcer have the specific agglutinins of this organism in their blood serum whereas patients suffering from other types of streptococcus infection fail to agglutinate it or agglutinate it in only low titre

4 The organism is apparently present in the lesions in immediately prepared Leiden tissue sections

5 The organism undergoes differentiation from S (virulent) to R (non virulent) under artificial cultivation and the possibility that it may do so also *in vivo* has been demonstrated

6 The S (virulent) form will not grow in bile in low dilutions and the O (intermediate) form rapidly becomes R (non virulent) under bile cultivation

7 Surgical procedures which return to the ulcer bearing area give the best clinical results

8 Marked lactic acid fermentation by the streptococcus has been noted and its relationship to carcinomatous degeneration suggested

Pauchet V and Luquet G The Surgical Treatment of Ulcers of the Superficial Third of the Stomach (Groove Rectum) *Surg Gynecol* 93 1 367

Pauchet describes his technique of groove resection of ulcers located between the cardia and the boundary of the middle and upper thirds of the stomach along the lesser curvature Such ulcers

are found in 19 per cent of cases and are difficult to resect by the usual methods

After liberation of the stomach ligation of the coeliac and right gastroepiploic arteries and section of the duodenum the stomach is divided along a line which starts from the greater curvature at the junction of the antrum and corpus and passes across toward the lesser curvature After crossing two thirds the width of the stomach the direction of the incision changes sharply to run parallel to the lesser curvature encircle the pathological tissue and end at the lesser curvature between the ulcer and the cardia The resection may be done in one stage or the transverse resection may be done first and the part of the lesser curvature adjacent to the ulcer removed after and the ulcer bearing area may be removed and the opening repaired before the transverse section is made In the reconstruction the curved part parallel with the lesser curvature is sewed in two or three layers starting from above the gastric groove being thus converted into a tube The pyloric end may then be anastomosed to the duodenum as in the Billroth I operation or the duodenum may be closed and the opening anastomosed to a loop of jejunum as in the Polya operation

The author has performed this operation forty-four times in the last six years with a mortality of 15 per cent and good results in the remainder

PRICE L DALE MD

Ackman F D Multiple Adenopapilloma of the Stomach with the Report of a Case Showing Varying Degrees of Malignancy *Cad Med J* 93 39

The author adds another case to the eighty-eight cases of multiple gastric adenopapillomata which have been reported in the literature The condition seems to occur with about equal frequency in males and females Its average age incidence is fifty-three years

It is apparently of inflammatory origin although familial tendency toward its development has been reported and some observers have suggested that it may be congenital

The lesion is classified pathologically as polypoid adenoma and polyadenoma *capillaris* The case reported by the author is of the latter type of which only seven cases have been reported previously

There are no characteristic symptoms Epigastric pain is frequent but hamatemesis may be the first sign The roentgenogram is the best diagnostic aid but in some cases may be misleading Achylia is practically a constant finding and hence combined with myxorrhoea is considered very suggestive Malignant transformation is very common It is rarely multiple but the author's case showed in addition to a large carcinoma a malignant change in the stalk of a pedunculated adenopapilloma at the pylorus

The treatment is surgical

GEORGE A C L T T M D

Quain E P Prophylactic Gastrostomy *North West Med* 1930 xix 346

The author recommends the performance of simple gastrostomy in abdominal operations to insure a smooth postoperative course. Of forty seven cases which he treated in this way the convalescence was unusually smooth in all and there were no disturbing sequelae except in one in which a gastric carcinoma became secondarily engrafted into the sinus. Quain considers the procedure of great value in the prevention of paralytic ileus. A F 24 catheter is attached to the opening in the stomach wall 2 cm from its inserted tip by an inverted mattress suture. The contiguous gastric wall is then gathered about the catheter by a single pursestring suture and the tube fixed against the abdominal wall by tying tightly about it externally a twisted gauze sponge.

JOHN H WOOLSEY M D

Berard L and Heitz J Surgical Treatment of Intestinal Tuberculosis (Considérations sur le traitement chirurgical de la tuberculose intestinale) *Lyon ch r* 1930 xxvii 73

All varieties of intestinal tuberculosis are seen very frequently in pulmonary tuberculosis. Kahn found marked lesions of the intestines in 63 per cent of his cases of pulmonary tuberculosis and Brown and Sampson reported intestinal lesions in from 50 to 70 per cent of their cases. The most frequent form is ulcerous tuberculosis which is very difficult to diagnose. This may begin with failure of the general health, gastric disturbances, abdominal pain, intestinal hæmorrhage or diarrhoea. A definite diagnosis requires a roentgen examination.

Intestinal tuberculosis was formerly regarded as necessarily fatal but today, with early diagnosis and proper treatment it can often be cured. Medical treatment however is only palliative. Hebotomy and the use of the ultraviolet rays are still advocated by some but the authors regard them as only adjutants to surgical treatment. They state that when the diagnosis is doubtful an exploratory operation is justifiable and should not be deferred too long. When ulceration of the intestine is found the ideal method of treatment is resection of the affected part. When resection is impossible on account of a poor general condition palliative entero-anastomosis must be performed with or without exclusion. In many cases this has brought about great improvement.

AUDREY G MORGAN M D

Denéchau D and Prieur R Reflex Ileus in the Course of Reno Ureteral Lithiasis (Ileus réflexe au cours de la lithase reno-urétérale) *P esse méd* Par 1930 xxxiii 53

The authors report two cases of ileus developing in the course of renal lithiasis. The condition begins suddenly and may be provoked by fatigue. The first symptom is sudden severe pain which often occurs first in the lumbosacral region and rapidly becomes localized in the flank. In three-fourths of the cases it becomes localized on the left

side. Its irradiations vary. The second symptom vomiting (at first alimentary and then aqueous) was lacking in six of twenty one cases. More characteristic is the retention of feces and gas. The fourth functional symptom (absent in six of twenty one cases) is dysuria.

Flatulence sometimes general and sometimes localized with a loop clearly protruding in the midst of the swelling develops in all cases. A prominence may be present in the flank and iliac fossa on either side but is found more frequently on the left side. Isotonic contractions may accompany the painful paroxysms. The varying of these signs from day to day is explained only by a mobile and variable spasm with segmental dilatation of the intestine. The general signs are not comparable with the intensity of the abdominal phenomena even when they persist as long as two weeks.

When operation is deferred the symptoms do not last longer than twelve days. The fundamental characteristic of the condition is the variability of the symptoms. The emission of gas is always followed by marked improvement. The responsibility of a ureterorenal reflex for the condition is suggested by the absence of a saburral condition of the upper digestive tract and of fecaloid vomiting. The urine should be analyzed every day. Roentgenography may reveal a stone. The intestine and the kidneys have a common innervation from the branches of the sympathetic and parasympathetic nerves.

In reflex ileus in the course of ureterorenal lithiasis operation is contra-indicated. The pain should be relieved with belladonna and atropin by baths and by hot applications during the attacks and by the use of laxatives, gentle oil enemas and injections of peristaltine and bryophysis extract during the calm periods. It is possible that rachianalgesia might relieve the pain and stimulate the intestinal musculature.

PAGE

Dall Acqua V The Roentgen Appearance of the Mobile Duodenum (Gli aspetti radiologici del duodeno mobile) *Radiol med* 1930 xvii 781

Mobile duodenum is not rare being found in 50 per cent of cases in which the small intestine is examined roentgenologically but it is not always easy to recognize. The author reports seven cases which he saw during the course of a year. He classifies the forms of mobile duodenum as (1) partial mobility affecting only the first part and the beginning of the second part of the duodenum and (2) total mobility.

In partial mobility roentgen examination may show a double festoon or a complete scroll above the fixed portion of the descending part. When the supramesocolic part is free the duodenum appears to be inverted. The anomaly may be produced when abnormal motility is accompanied by a condition such as elongation of the hepatoduodenal ligament or ptosis of the liver. The elongation of the first part of the duodenum which is sometimes noted in these cases is an important finding of X-ray examination.



When there is total mobility the duodenum may present an almost normal appearance. However in most cases it is entirely on one side of the median line and anomalies in the position of other abdominal organs are noted.

With regard to the importance of mobile duodenum in pathological conditions of the abdomen the author states that in some cases the mobility may result in stenosis because of the position of the duodenum or because of compression of the biliary passages. Gastritis duodenitis, periduodenitis and gastric or duodenal ulcer are frequently associated with the anomaly.

MARTIN J. DI COLA, M.D.

Vissani R. Extrabulbar Ulcer of the Duodenum  
(Contributed by the author to the Italian Medical Association, Rome, 1933, p. 698)

The author reviews the literature on extrabulbar ulcer of the duodenum and calls attention to the scarcity of clinical and roentgenological data on this lesion. He reports four cases of his own in which the diagnosis was confirmed at operation. In one it was confirmed also by autopsy. The symptoms in these cases were very similar to those of ulcer in its usual location in the first portion of the duodenum. The roentgen findings corresponded to those characteristic of ulcer in other situations. They consisted of the presence of a niche, stenosis of the lumen of the duodenum, disappearance of the duodenal folds and spasm opposite the ulcer. The author discusses the differential diagnosis between extrabulbar ulcer and duodenal diverticulum, dilated ampulla of Vater and neoplasm.

Vissani believes that if roentgenologists studied the entire duodenum with more care, particularly in cases in which the clinical and roentgen findings do not agree, it would be found that extrabulbar ulcer of the duodenum is more common than the literature indicates.

C. D. HAGGARD, M.D.

Watson J. H. Acute Perforating Duodenal and Gastric Ulcer. *B. J. Surg.* 1933, p. 69.

The author reports his experience in 100 cases of perforating gastric and duodenal ulcers. One hundred and ten of the patients were males. Fifty-five of the males had an ulcer of the duodenum and 17 an ulcer of the stomach. Of the 8 females, 2 had an ulcer of the duodenum and 6 an ulcer of the stomach. Most of the patients were in the third or fourth decade of life. Watson believes that perforating ulcers, especially of the duodenum, are occurring more frequently in persons belonging to the artisan class.

The peritoneal reaction varies according to the length of time intervening between the taking of food and the occurrence of the perforation. The longer the interval, the less the leakage and the less noxious the spilled material. In cases in which treatment is not given until 6 hours after the perforation there is usually gross infection.

In discussing the diagnosis the author emphasizes the acute onset of agonizing pain. In early cases

the pulse is slow and of good volume. The blood pressure is usually normal or slightly raised.

As treatment, Watson favors excision of the ulcer-bearing area, division of the pyloric sphincter, approximation of the cut edges of the viscous incision at right angles to the long axis of the gastroduodenal tract and closure in layers. He prefers local anesthesia supplemented if necessary with ether. He closes the laparotomy wound without drainage but employs pelvic drainage for from twenty-four to forty-eight hours.

JOHN H. WOOLSEY, M.D.

Haggard W. D. An Enterogenous Cyst of the Ileum Causing Obstruction in an Infant. *S. G. J.* Vol. 11, 1933, p. 713.

Haggard's case was that of a three weeks old girl, the only child of normal parents. She weighed 9 lb. 5 oz. at birth and was delivered normally. When a week old she had lost 15 oz. but at the end of another week she had gained 4 oz. Five days later she weighed 8 lb. 8 oz. The loss in weight was attributed to a decrease in the mother's milk supply. At about this time the infant spit up an increasing amount of milk after each feeding. She was therefore given supplemental lactic acid milk but spit up more and more curdled milk and also bile after nursing. The abdomen showed some distention and peristalsis became visible. Constipation was present but the enemata were highly colored. During the next twenty-four hours the baby vomited practically all of the milk taken, the visible peristalsis became more marked and a smooth round movable tumor the size of a hen's egg could be palpated just to the right and slightly above the umbilicus. Enemata returned clear. Rectal examination was negative. The stools were free from blood and there was no fever.

The tumor was too large and too low for hypertrophic pyloric stenosis and the vomiting was not of the projectile type. The diagnosis was intestinal obstruction of seventy-four hours' duration due to a tumor.

At operation performed under novocain anesthesia a bluish gray rounded cystic tumor the size of a hen's egg was delivered. It was situated in the ileum 1 in. above the ileocecal valve. The intestine was some 1/2 in. collapsed below it and distended above it. The tumor was intimately connected with the intestine. It apparently originated in a hard fibrous area at the mesenteric attachment and extended up beneath the serosa and mucosa, collapsing the intestine with its internal pressure as it grew and producing complete intestinal obstruction. Aspiration withdrew a thick, tenacious grayish mucus without any odor. Cultures and smear were negative. The tumor was opened and its contents were evacuated extraperitoneally. The cyst wall did not communicate with the ileum but extended all around it. When the excess of the cyst wall was removed the cyst sac being left open the contents of the distended portion of the bowel were then seen to pass into the collapsed portion. A

partial constriction of the intestine still persisted but the lumen was adequate. The remains of the cyst sac were sutured to the lower end of the wound to facilitate a subsequent enterostomy should it prove necessary. One hundred and eighty five cubic centimeters of the father's blood citrated were introduced into the superior longitudinal sinus.

On the third day after the operation enemas were expelled with gas and fecal matter. The obstruction seemed to be relieved but the child died at the end of the third day from pneumonia secondary to peritonitis.

HARRY W. FINK, M.D.

Bargen J. A. and Weber H. M. Regional Migratory Chronic Ulcerative Colitis. *Surg Gynec & Obst* 1930 1: 964.

Twenty three cases of localized chronic ulcerative colitis were observed at the Mayo Clinic in the year 1928-29. Fifteen of the patients were males. The duration of the symptoms before the patients came to the Clinic varied from four months to thirteen years. The treatment included primarily the use of specific serum and vaccine. Four of the patients underwent ileocolostomy, one ileostomy, another caecostigmoidostomy and another ileostomy followed first by colectomy and later by ileostigmoidostomy. Fifteen of the patients were cured, three are doing well and five have died.

The authors conclude that regional segmental localized or migratory ulcerative colitis is a form of chronic ulcerative colitis which is more difficult to recognize than the usual type of chronic ulcerative colitis and that as soon as the diagnosis is established specific treatment should be instituted.

Morrison L. B. The Role of the X-Ray in the Diagnosis of Carcinoma of the Colon. *New England J Med* 1930 1: 441.

Richardson E. P. The Diagnosis and Principles of Treatment of Carcinoma of the Colon. *New England J Med* 1930 1: 455.

Jones D. F. Diverticulitis of the Colon. Its Relation to Carcinoma. *New England J Med* 1930 1: 459.

Cheever D. The Results of Treatment of Carcinoma of the Colon at the Peter Bent Brigham Hospital. Boston. *New England J Med* 1930 1: 462.

MORRISON. The opaque meal is of value in demonstrating the motility and the position of the colon. Lesions of the proximal colon such as inflammatory processes in the cecum and ascending colon (tuberculosis abscess, certain types of carcinoma and gumma), diverticula and complete obstructions. The barium enema however gives a more satisfactory picture of the lesion and colonic outline. Proper preparation of the patient by the administration of oil and a cleansing enema prior to the examination is imperative. The roentgenologist should know the history of the case and in doubtful cases repeated examinations should be made.

RICHARDSON. Cancer of the colon whether obstructive or not is a favorable type for cure. The

difficulty in obtaining better results lies not in inoperability but in operative mortality. In reducing the operative mortality the following principles of treatment should be stressed: drainage of the bowel to overcome obstruction; thorough mobilization of the bowel before resection; care in the preservation of the blood supply; drainage of the suture line; the avoidance of resection under certain circumstances and of immediate anastomosis by exteriorization of the growth before resection; and in occasional cases the formation of a permanent artificial anus.

JONES. The occurrence of bleeding with diverticulitis of the colon is so rare that it is far safer to at least explore all cases of supposed diverticulitis with bleeding than to treat them medically. If all such cases were operated upon there would probably be an error of 8 per cent whereas if none were operated upon there would be an error of 24 per cent. The result of the error of operating unnecessarily is not serious but the result of neglecting to operate means a mortality of 24 per cent.

There is no longer any reason for considering resection in cases of diverticulitis because of the fear of carcinoma. Recent statistics indicate that cancer is associated with diverticulitis in only from 17 to 8 per cent of the cases whereas the mortality from resection remains at from 12 to 22 per cent.

CHEEVER. A survey of the patients treated at the Peter Bent Brigham Hospital Boston for carcinoma of the colon reveals that this localization of carcinoma is more favorable than any other in the abdominal cavity. While some carcinomata of the colon are fulminating the majority metastasize slowly and give indications of their presence early enough for lasting relief if not a cure from operation. The mortality of radical operation is less than 20 per cent. A closer selection of cases is probably not justifiable though it would undoubtedly result in a decrease in the mortality. If radical operations for carcinoma of the colon were performed by only a limited group of surgeons the mortality rate would probably be reduced to 15 per cent or lower. Apparent involvement of lymph nodes which cannot be removed should be regarded as a contra indication to resection as the enlargement of lymph nodes may be due to inflammation rather than the carcinoma. In cases with severe symptoms palliative operations are well worth while though they carry a high mortality.

GEORGE A. COLLETT, M.D.

Marmasse J. Acute Appendicitis as a Sequela of Labor (Appendicite aigue des suites des couches). *Presse med* Par 1930 XXXVI: 1122.

The woman whose case is reported was a primipara who had been examined without gloves and given an injection by a midwife whose hands had been disinfected with gomenol. After almost two days of labor delivery was effected with forceps. There was no perineal laceration and no hemorrhage and the uterus began to contract quickly. The puerperium was normal for thirty six hours but at the end of that time the patient had a chill, her

temperature rose to 39.8 degrees C and spontaneous and provoked pain developed on the left side of the uterus at a distance from the uterine horn. The uterus was one fingerbreadth below the umbilicus and slightly contracted. Urination as spontaneous.

Ice was applied to the uterus, uroformin was administered and an injection of pysoformin was given. The next morning the patient had another chill and her temperature rose to 39.6 degrees C. The pains had ceased completely since the expulsion of two clots but vomiting occurred. The uterus was contracted and the cervix closed. The pain then recurred on the right side about three fingerbreadths from the uterine horn. Appendicitis as suspected. With attacks of pain in the right iliac region and vomiting the signs became clearer. During the next two days the general condition improved but on the sixth day after delivery there was a sudden attack of pain, nausea and syncope with elevation of the temperature. The pulse was 120 and weak.

Operation disclosed oedema of the peritoneum. When the peritoneum was opened about a liter of pus flowed out. The appendix which was gangrenous and divided in the middle was removed and the abdominal cavity washed out with ether. The uterus and adnexa were normal.

For several days after the operation the general condition was poor. On the eighth day the drains were removed. The patient did not nurse her child for sixteen days but eight days after she returned to her mother as able to get all its nourishment.

Marmasse compares this case with an unpublished case observed by Metzger. Metzger described a patient who had a temperature of 38.7 degrees C and a singular blood abundantly thickened after delivery. Her general condition was very poor. Examination revealed a placental clot the size of a navel. This was removed, ice was applied to the uterus and 500 cm of physiological salt solution were administered subcutaneously. In the evening the temperature was normal. The next two days passed without incident but during the evening of the third day the temperature rose to 39 degrees C and continuous vomiting occurred. The uterus was not painful. The faeces suggested peritonitis but the lochia were odorless. Operation for appendicitis was performed under ether anaesthesia. The appendix contained pus. The patient left the hospital in good condition on the tenth day. The early diagnosis as responsible for the satisfactory result. Appendicitis in the puerperium should be treated as if the patient were not in the puerperal state.

Two cases are cited from the literature. P 1

Gordon Watson, St. C. L. Calagne, C. d. S. Lockhart Mummery, J. P. and Others. Discussion on Radium in the Treatment of Carcinoma of the Rectum and Colon. *J. Roy. Soc. Med.* London 1933. 465.

In this discussion it was rather generally agreed that in an operable case of carcinoma of the colon

in which the general condition is good surgery is much to be preferred to radium irradiation. While radium will occasionally arrest the growth of a far advanced inoperable carcinoma of the rectum its results in operable growths does not justify its use in preference to surgery when the growth can be removed by operation. Sometimes apparently identical tumors reacted differently to radium, one type being radiosensitive and the other radioresistant. Radium is indicated in the cases of old and feeble patients, those with a complication precluding operation, those who refuse to submit to colostomy and those who are under thirty years of age.

Most of the surgeons taking part in the discussion preferred interstitial therapy, i.e. the introduction of radium needles through the rectum or anus or intraperitoneally in growths at or above the rectosigmoid. The needles are filtered with from 0.8 to 2 mm of platinum and are left *in situ* for from seven to ten days. The use of radon seed is easier and associated with less danger of peritonitis from leakage but on account of the diminishing intensity of the seeds is more apt to be followed by recurrence. The ideal irradiation is a well screened dose applied for a long time. Least satisfactory is irradiation of the lumen of the bowel.

The primary irradiation is the most effective. When a growth bridged with radium does not regress in two months a repetition of the irradiation will be useless. If there is some retrogression but not complete disappearance further irradiation is indicated. However, an overdose may result in stricture. Cases treated with the correct dosage show absence of sepsis, well marked radium film (firmly adherent) eudate in from ten to fourteen days, rapid resolution of the growth, restoration of the normal epithelium and a limited fibrosis. The correct dosage is sometimes quite difficult to obtain as the difference between the lethal dose for normal cells and that for cancer cells is slight.

A few patients whose cases were reviewed remained well for three and a half years. In a greater number the hemorrhage pain and discharge were diminished and the progress of the lesion delayed.

The best results from treatment with radium are obtained in epitheliomata which sometimes disappear very quickly. Radium irradiation is indicated chiefly in the cases of old persons not suitable for operation. In such cases the results are good and if the growth is detected at a fairly early stage there will be no necessity for a colostomy.

In some cases radium may be used to treat the line of spread of a neoplasm after local resection of the growth. H. RYCE, S. L. ST. IN. M. D.

L. S. Ueff, L. F. Flisul, In Ano. *Med. J.* 1933. 93. 85.

Practically every anal fistula flows in absence of the anal region which has either not been treated or has been treated incorrectly. Approximately 37 per cent of patients with anal fistulae have been subjected to previous operations.

Hippocrates recognized anal fistula and outlined a rational method of treatment for it. Arderne (1307-1377) treated the condition successfully by open drainage.

It is essential to remember that the mucocutaneous line is at the point of greatest narrowing of the large bowel and is most sensitive to trauma and irritation. The internal sphincter is a thickening of the circular muscular coat of the rectum without a separate nerve supply. The external sphincter on the other hand has an individual nerve supply and can be relaxed voluntarily.

The levator ani muscles form two broad sheets of muscle fibers surrounding the rectum posteriorly and interlacing with the fibers of the musculature of the rectum and internal sphincter.

The anal canal and lower portion of the rectum are surrounded by a pad of loose fatty tissue which is continuous with the cellular tissues of the ischio rectal fossae. There are no fascial sheets to serve as barriers to the extension of infection and a poor blood supply is further embarrassed by the pressure of the sitting posture.

Anal fistula is more common in men than women and is favored by occupations requiring much sitting. Its most common causes are ischio rectal abscess, tuberculosis (15 to 20 per cent of cases), stricture of the rectum and foreign bodies. A fistula practically always results from an abscess in the region of the rectum. As a rule the abscess has its origin in a tear or wound of the mucosa at the mucocutaneous junction from which infection spreads to the ischio rectal fossa. The abscess should be freely incised to its limits and unroofed by excising the skin of each quadrant formed by a crucial incision. The cavity should be lightly packed with gauze to insure healing from the depths by granulation. Subcutaneous submucous perirectal abscesses require adequate incision and open drainage.

In 102 cases of anal fistula Le Souef encountered 49 simple direct fistulae (21 anterior, 23 dorsal, 5 lateral), 42 horseshoe fistulae (18 anterior, 24 posterior), 4 perirectal fistulae, 4 ischio rectal fistulae and 3 submucous fistulae.

As a rule there is a history of abscess in the anal region which discharged spontaneously or following incision. After such evacuation a small opening with a more or less constant discharge usually persists. Pain is not marked. Digital and proctoscopic examination should be supplemented by X-ray examination with a barium enema or the injection of iodized oil.

The treatment should be surgical as palliative treatment has little to offer. Le Souef describes the operative treatment in detail including the preparation and position of the patient, the anesthesia and the instruments employed. The operative procedures may be (1) excision of the fistula the wound being left open, (2) incision of the fistula the wound being left open, (3) excision of the fistula followed by suturing of the wound or (4) a combination of these procedures. Possible postoperative

complications include hæmorrhage, urinary retention and incontinence. The after treatment should be directed toward obtaining healthy granulation from the bottom of the wound. Delay or non healing is due to inadequate operation, incorrect postoperative treatment or complicating constitutional conditions.

ALTON OCHSNER, M.D.

## LIVER, GALL BLADDER, PANCREAS AND SPLEEN

DeCoursey, C. and Thüss, O. Liver Function  
With Special Reference to the Sympathetic  
Adrenal Response Test. *Of a State W. J.* 1930  
v. 1, 669.

In chronic liver disease the impairment of hepatic function is determined chiefly by the amount and distribution of scar tissue. In portal cirrhosis in which the fibrosis is so situated that it does not interfere with the compensatory hyperplasia that takes place, functional efficiency remains high. When the hyperplasia can keep pace with the injury (as in the hypertrophic form) the prognosis is better. When the fibrosis is early and diffuse and interferes with hyperplasia, holding the tissues in a vise like framework (atrophic type) function is greatly diminished and disturbances such as obstruction of the portal vein soon result. In gummatous cirrhosis the pathological changes are localized or scattered and do not interfere with compensatory hyperplasia.

Simpson and Macleod state that the liver glycogen is the only source of the blood sugar since muscle glycogen is converted after mobilization into lactic acid and the latter must then be synthesized into liver glycogen before it can supply the blood with sugar.

Cannon has recently called attention to evidence that the process of storage by segregation in hepatic and muscle cells is dependent upon the secretion of insulin. Removal of the pancreas causes the prompt appearance of hyperglycæmia and a reduction in the hepatic glycogen reserves. The administration of insulin to sugar fed depancreatized dogs reduces the blood sugar to the normal percentage and causes glycogen to accumulate again in large amounts in the liver.

In studying the relationship between the formation of bile and glycogen in the liver, Forsgren noted that the glycogen was low when the bile was greatest in amount and vice versa. He found also that the glycogen is first deposited around the central vein of the lobule and remains there longest. This shows why in obstruction of the common duct the glycogen content of the liver decreases.

The authors observed early in their studies that the glycogenic function of the liver is the pivot around which the other functions revolve and that when the liver contains a large reserve of glycogen it is less susceptible to degeneration.

In the investigations reported by the authors the following determinations were made:

1. The sympathetic-adrenal response.

- 2 The retention of bromsulphalein
- 3 The urobilin content of the blood (acriflavine used as a standard as described by Blankenhorn)
- 4 The serum bilirubin (van den Bergh test)
- 5 The bile acid content of the blood (modified Pettenkofer test)
- 6 The blood cholesterol
- 7 The blood platelets

Studies were made of normal persons persons with borderline conditions such as early cirrhosis and gall bladder disease without jaundice and persons with marked hepatic disease

Before the sympathico adrenal response test was made the subject was given a full diet Before breakfast on the day of the test a blood sugar estimation was made Immediately thereafter 34 ccm of a 1:1000 solution of adrenalin chloride was injected subcutaneously After the injection blood was taken every fifteen minutes for one hour and the blood sugar curve plotted

In the cases of normal adults the curve usually rose to a height of about 30 40 or 50 mgm and often to 60 and 70 mgm in the first half hour and then declined slightly to the hour point The majority of the curves showed an average rise between 30 and 40 mgm over the fasting level In the cases of patients with borderline conditions and those with severe hepatic disease the rise was delayed the average rise was 12 mgm per cent above the fasting level and the curve was often depressed 5 or 10 mgm per cent

The authors believe that this test will show a deficiency of the carbohydrate metabolism in the liver in hepatic disease CNALES F DuBois MD

Williams B and McLachlan D G S The Etiology of Cholecystitis La 1 93 cu 34

Whereas formerly gall stones were supposed to be produced by the simple chemical precipitation of cholesterol as a result of hypercholesterolemia infection is now regarded as an important factor in their formation The authors report experiments undertaken with the object of investigating the occurrence of streptococci in cholecystitis and the power of these micro-organisms to attack the gall bladder of animals when injected intravenously Attention was directed toward cholecystitis rather than cholelithiasis

Of four cases of acute cholecystitis including gangrene the bacillus coli were found in all and the bacillus welchii in two

Of ninety three cases of chronic cholecystitis including empyema and mucocele streptococci were obtained from the gall bladder wall in fourteen (17 per cent) and colon bacilli in nineteen (23 per cent) From the contents of the gall bladder streptococci were isolated in twenty one cases (26 per cent) and colon bacilli in sixteen (20 per cent)

Of nine cases of cholesterosis with a typical strawberry appearance of the mucosa streptococci and the bacillus coli were isolated in one case

The low incidence of micro organisms is of interest as inflammatory changes are nearly always present The results of cultures are often surprising The specimens most likely to give a growth are those with a thick and edematous wall Thick tarry bile is usually sterile while white bile is nearly always infected

A classification of the strains of streptococci obtained from cultures was made Half of the strains corresponded definitely to the enterococci which occur normally in the bowel and the other half resembled the salivary and gamma streptococci Most frequent among the other organisms were the colon bacilli and the next most frequent the bacillus lactis aerogenes and the bacillus welchii The incidence of the bacillus welchii is of interest because of the recent work on the use of bacillus welchii serum in acute abdominal conditions

Of thirty-one rabbits given intravenous injections of streptococci bacillus coli bacillus paratyphosus and staphylococcus aureus according to the methods of Wilkie and Roseno only two developed gross evidence of lesions in the gall bladder In one the lesions developed after the injection of streptococci and in the other after the injection of the bacillus coli

The injection of streptococci into the wall of the gall bladder resulted in slight thickening of the gall bladder wall but a similar change was observed when sterile saline solution was injected

According to the authors experience bile has no great inhibitory action on the growth of the majority of non-hemolytic streptococci and the organisms isolated have very little power to localize effectively in the gall bladder of experimental animals NORMAN G PARRY MD

Morone G Experimental Mycotic Cholecystitis (Clinical material) Br 1 1934 9

The author is impressed by the scarcity of reports on mycotic infections of the biliary tract He reports the results of a series of studies on infection of the gall bladder of the guinea pig by sporotrichum beauverrii and mucor racemosus Initially the mycetes caused an acute cholecystitis of an infiltrating serous type or less frequently a mild suppurative type In some instances the acute cholecystitis was followed by practically complete recovery but in others the inflammation soon became chronic as manifested by cholecystitis of the sclerotic atrophic hypertrophic hydropic cal suppurative and granulomatous types and in one instance a peculiar cystic cholecystitis The chronic changes especially those of the suppurative variety were easily produced by fungi of low virulence

Strawberry gall bladder was never seen at any time in the course of the mycotic infection Not uncommonly however there was a precocious hyperplasia of the mucous membrane with the formation of pseudoadenomatous formations characteristic sometimes extended into or through the gall bladder

wall. Spread of these changes to the large bile ducts was not infrequent. A peculiar plastic pericholecystitis was common. In one instance a typical gastric ulcer appeared as a complication.

The fungi were recoverable from the gall bladder at all stages of the process and as late as fourteen months after the infection. *In vitro* the bile did not exhibit the development of the mycetes. Rarely were secondary organisms found. When they were present they did not materially change the course of the cholecystitis. A. Louis Roser M.D.

Murphy G. T. The Effect of Acute Experimental Cholecystitis on the Emptying of the Gall Bladder. *Arch Surg* 1930 xvi 300

In experiments on a series of ten animals the author studied the effect on the emptying of the gall bladder of chemical cholecystitis produced by the intravenous injection of eusol. Direct observations and roentgenograms of the gall bladder were made following the administration of a meal rich in egg yolk and cream. In only a single instance was there any evidence of emptying. The observations therefore seem to indicate that the acutely inflamed gall bladder does not empty after the usual test meal.

Walsh E. L. and Ivy A. C. The Etiology of Gall Stones. *Ann Int Med* 1930 iv 134

In experiments carried out by the authors human gall stones of the mixed cholesterol calcium pigment type were washed with sterile salt solution weighed and placed in the gall bladders of dogs given a stock diet of corn meal bread and bone soup. The rate of disappearance of the stones was then followed by X-ray examination.

In eight dogs the average amount of stone dissolved in sixty five days was 56 per cent. the maximum 87 per cent. and the minimum 24 per cent. If a definite chronic fibrous cholecystitis followed the introduction of the stone the loss of weight was small (3 to 5 per cent) and light yellow bile of low specific gravity was found in the gall bladder. Gall stones placed in the peritoneal cavity showed no material change in weight.

The addition of olive oil and coconut oil to the diet failed to alter the rate of solution of the stones materially. When olive oil was used the average amount dissolved was 53 per cent. the maximum 86 per cent. and the minimum 21 per cent. When coconut oil was employed the average amount of stone dissolved was 60 per cent. the maximum 100 per cent. and the minimum 35 per cent. The difference of 4 per cent. over the control group is regarded by the authors as insignificant.

Ligation of the cystic duct and stricture of the common duct produce certain histological changes such as hyperplasia and fibrosis in the gall bladder mucosa and lymphoid tissue and a lowering of the specific gravity and a thinning of the bile. A diffuse fibrous cholecystitis prevents the solution of gall stones through failure of the affected gall bladder to concentrate the bile. In experiments carried out by

the authors in which continuous reverse peristalsis with duodenal stasis and abnormal motility were obtained by the formation of a reverse duodenal loop marked hyperplasia of the gall bladder mucosa and lymphoid tissue resulted and after several months the bile was found to be thick and to contain sediment of the pigment and carbonate type.

Experiments *in vitro* showed that human bile the two chief salts and diluted dog's bile possess no solvent action on human gall stones.

Soap especially the soap of lauric acid is a potent solvent of cholesterol and the mixed type of human gall stones.

There is a marked difference between human and dog bile as far as the ability to saponify cholesterol is concerned. The authors believe this explains why gall stones of the cholesterol variety have never been produced in the dog and why the dog's gall bladder dissolves human gall stones.

NORMAN G. PARRY M.D.

Austoni A. The Technique of Cholecystectomy and in Particular the Ideal Cholecystectomy (Sulla tecnica della colecistectomia ed in particolare della colecistectomia ideale). *Chir. chirurg* 1930 1 630

The surgery of the biliary tract is gradually becoming more important because of better diagnostic methods. In this field unlike most others post operative drainage is regarded by many as indispensable. However Haberer concluded that the truly ideal cholecystectomy is subserous removal of the gall bladder in which the operative field is covered with peritoneum and the abdomen closed without drainage.

The author reports a series of 215 cases of biliary tract surgery in 110 of which the so called ideal cholecystectomy was done. These included many complicated as well as simple cases. The best time for the operation is during an afebrile period. Absence of jaundice is most desirable but the surgeon should not wait longer than from fifteen to twenty days for the disappearance of this condition. The gall bladder may be removed even in the presence of such complications as empyema pericholecystitis adhesions and fistulae. The cystic duct should be doubly ligated the operative field covered as well as possible with peritoneum and the abdomen closed without drainage even when hæmorrhage or peritonization is not complete or there is slight soiling with pus. Austoni's results show that in cases treated by ideal cholecystectomy the mortality is generally lower and the postoperative complications fewer than in those treated by cholecystectomy with drainage.

The principal complications of drainage are delayed healing infection in the abdominal wall secondary infection with thrombosis in the operative field unfavorable effects on the heart and circulation interference with abdominal function and limitation of the excursions of the diaphragm which predispose to postoperative pneumonia.

The indications for drainage include the impossibility of isolating and ligating the cystic duct in secure ligation of the cystic duct questionable viability of the common duct sepsis in the intrahepatic and extrahepatic bile passages and mechanical injuries due to faulty technique

A. LOUIS ROSE M.D.

Gordon Taylor G and Whitby L E II A  
Bacteriological Study of Fifty Cases of Cholecystectomy with Special Reference to Anaerobic Infections *B I J S g* 93 78

As a result of the work done by Rosenow Wilkie and others attention has been drawn to the importance of streptococci in the production of gall bladder disease and the theory has been advanced that cholecystitis is due to blood borne bacterial emboli from remote foci such as apical dental infections which set up infection of the gall bladder wall. The older view that gall stones and cholecystitis arise from the penetration of intestinal bacteria into the lumen of the gall bladder has therefore been superseded and there is perhaps a tendency to overemphasize the part played by streptococci and to regard intestinal bacteria as terminal rather than primary causal agents. However the frequent presence of intestinal bacteria in gall bladder infections cannot be denied and it is indisputable that the anatomical position of the liver and gall bladder definitely favors infection of these organs from the intestinal tract. Moreover the activities of intestinal bacteria are almost invariably accompanied by acid production which is of great importance in the precipitation of cholesterol and therefore in the formation of gall stones.

To the usual list of intestinal bacteria found in gall bladder infections the authors add bacillus *elchii* an organism with remarkable acidogenic properties which was found in 9 of 50 consecutive cases. They emphasize the importance of routine anaerobic as well as aerobic cultures.

Of the 5 cases reviewed the bacillus coli was found in 15 the bacillus *elchii* in 9 the streptococcus faecalis in 4 the staphylococcus albus in 8 the staphylococcus aureus in 1 the bacillus paratyphosus in 1 and the bacillus acidilactici in 1. In 8 the cultures were sterile.

A review of about 500 cultures of the fluid contents of the gall bladder the gall bladder wall and gall stones shows that the intestinal bacteria are the most common microorganisms to be found in gall bladder infections. Only a small percentage of the cultures showed the bacillus *elchii*. However this fact gives no indication of the incidence of anaerobic infection because in many cases anaerobes were not looked for. The bacillus *elchii* is associated mainly with the acute forms of cholecystitis but was present also in 13 per cent of gall stones removed at autopsy. Accordingly there is some evidence for the belief that the bacillus *elchii* may be a primary cause of gall bladder infection. Congestion of the gall bladder caused by the pressure

of a loaded colon ptosis or the internal pressure of the gall bladder contents is very favorable for the multiplication of bacillus *elchii*.

The streptococci isolated were not of the hemolytic variety. The most probable route of infection of the gall bladder by these microorganisms is by way of the portal system to the liver and thence by the perportal lymphatics.

Gall stones may form as the result of a comparatively mild inflammation of the gall bladder. They favor fresh infection the development of more acute cholecystitis and persistence of the original infection. When the inflammatory process is of long duration bacteriological examination may show the gall bladder and its contents to be sterile. Therefore the stones become the tomb of the causal bacteria.

NO MAN G P REY M.D.

Sanders R I The End Results of 500 Cases of Cholecystectomy *I S g* 93 376

In the 500 cases of cholecystectomy reviewed the average age of the patients was forty three years. The youngest patient was four years and the oldest eighty three years of age. The mortality was 4 per cent.

In 78.2 per cent of the cases the chief complaints were epigastric pain fullness gas and bloating. Gall stone colic occurred in 59.2 per cent but stone were found in only 40 per cent of the gall bladders removed. Jaundice was present in 3 per cent of the cases and nausea and vomiting occurred in 51 per cent.

Cholecystectomy alone was done in 35.6 per cent. In 58 per cent cholecystectomy and choledochotomy were done in 40 per cent cholecystectomy and appendectomy and in 9.6 per cent cholecystectomy and pyloroplasty. The importance of the complete eradication of all intra abdominal disease is emphasized. The author today closes the abdomen without drainage in more than 7 per cent of cases but in 65.6 per cent of this series of cases drainage was employed. In the cases of closure without drainage it never became necessary to re-open the abdomen and as a rule the convalescence was smoother and shorter than in the other.

The average stay in the hospital was sixteen and five tenths days in cases with drainage and fourteen and six tenths days in those without drainage. Infection occurred in 6 per cent of cases without tight closure and 14 per cent of those with drainage.

In the cases with drainage there was a mortality of 6 per cent. The chief causes of death were pneumonia myocardial and hepatic insufficiency and shock.

The author believes that when the cystic duct and artery are tied together there is less danger of leakage.

All of the gall bladders were studied by a pathologist. Only 5.8 per cent presented the mild type of cholecystitis. Strawberry gall bladder was found in 10 per cent of the cases and relief was marked after removal of this type.

The end results in 35 cases were as follows

|                                       | Per cent |
|---------------------------------------|----------|
| Complete relief of symptoms           | 94.0     |
| Partial relief of symptoms            | 11.6     |
| No benefit or symptoms made worse     | 4.0      |
| Digestion much improved               | 87.0     |
| Only partial relief                   | 9.3      |
| Digestion not benefited or made worse | 3.7      |
| No colic                              | 87.2     |
| Recurrent colic                       | 12.5     |
| No subsequent jaundice                | 95.4     |
| One or more attacks of jaundice       | 4.5      |
| Condition of wound satisfactory       | 91.4     |
| Bulge or hernia                       | 8.5      |

In 2 of the cases in which postoperative jaundice occurred it was accounted for by the discovery of stones in the common duct but in the others the cause was less certain.

Most of the unsatisfactory end results occurred in cases in which there was cholecystographic evidence warranting operation but not a good clinical history. In most of the cases in which no relief was obtained there was a mild cholecystitis.

NORMAN G. PARRY, M.D.

Chiray M. Jeandel A. and Salmon A. Clinical Exploration of the Pancreas and the Intravenous Injection of Purified Secretin (*Exploration clinique du pancréas et l'injection intraveineuse de sécrétine purifiée*) *Pr. Soc. Méd. Par.* 1930 XVIII 977

The authors review the laboratory methods used for the study of the external pancreatic secretion methods which measure the activity of the fundamental diastases of this secretion: trypsin, amylase and lipase. In the older indirect methods analysis of the pancreatic ferments is made sometimes in the stool sometimes in the blood and sometimes in the urine.

In studying the pancreatic secretion provoked by foods the authors chose milk but tests made with milk were fatiguing to the patient and sometimes difficult. The secretin test is more simple, rapid and exact. The intravenous injection of a dose of 2 ampoules of secretin diluted in 6 c.c.m. of twice distilled water gives quick results. With the sound in place and a sample of Bile A collected the complete emptying of the gall bladder is brought about by two intraduodenal instillations of a hot 33 per cent solution of magnesium sulphate. The instillations are separated by an interval of fifteen or twenty minutes. After the Bile B has flowed out a few centimeters of the Bile C are recovered for comparison.

In normal case the pancreatic response occurs almost immediately usually before the end of the first minute. Samples of the pancreatic secretion should be taken every five minutes and tubes prepared immediately for examination of the ferments. The authors analyze the lipase by the Bondi method with the modification of Chiray and Milchevitch and the trypsin by the method of Gaultier Roche and Barratte.

The intravenous injection of secretin is followed almost immediately by a marked increase in the output of secretion. When the latter stops or almost stops it nearly always begins to flow abundantly again and nine or ten samples can be obtained at intervals of five minutes. The collection in from fifteen to twenty five minutes amounts to about 150 c.c.m. In the first tubes from 10 to 30 c.c.m. is collected in five minutes. The output then becomes progressively less and may even stop suddenly.

In pathological cases the curve may be very similar but the figures are lower. Sometimes the output which is somewhat accelerated at first gradually diminishes to insignificant amounts which cannot be analyzed. There is also a deficiency in the enzyme content.

The secretin test was used by the authors on normal persons and in twenty nine cases of cholecystitis, two cases of cyst of the pancreas or non-cancerous hypertrophic pancreatitis, two cases of diabetes and two cases of digestive atony. When the gall bladder is atonic the cholecystokinetics used at the beginning of the test do not completely empty it and emptying is accomplished by the intravenous injection of secretin. This hormone appears to have a great cholecystokinetic power which may interfere with the collection of pancreatic juice.

PAGE

Mouzon J. Partial Pancreatectomy in the Treatment of Conditions of Hyperinsulinism (*La pancréatectomie partielle dans le traitement des états d'hyperinsulinisme*) *Pre. Soc. Méd. Par.* 1930 XIX III 157

Mild forms of spontaneous hyperinsulinism have been noted in certain diabetics with instability of the blood sugar rendering insulin treatment impossible and in non-diabetic persons suffering from obesity or hypertension. These are manifested by attacks of asthenia and hunger associated with hypoglycemia such as may follow a large dose of insulin and may be entirely relieved by the administration of carbohydrates. In more severe forms convulsive, confusional and apoplectic phenomena may develop suddenly and the condition may prove fatal unless it is promptly relieved. The treatment is simple consisting merely in the administration of sugar water.

In some instances severe hyperinsulinism is due to a hyperplastic lesion or tumor of the pancreas. As an example the author reviews a case studied by Wilder, Allan Power and Robertson in 1927. The patient was a physician aged forty years who in 1920 had been subjected to gastro-enterostomy and appendectomy on account of pain in the region of the stomach. This treatment was followed by relief but in February 1922 and January 1925 the epigastric pain recurred. Glucose was then found in the urine. A few months after the recurrence of the pain in 1925 the patient began to have sudden attacks of fainting with parasthetic numbness of



the tongue and lips abundant sweating and trembling. These came on with increasing frequency before meal and after effort. The patient found that he could prevent them if when he noted the first symptoms he had time to eat something or take a sweet drink. It became necessary for him to increase his meals. Soon he noted epigastric pain and abdominal heaviness after meals. He gained weight became pale and developed furunculosis. The liver was large firm and painless. Tests showed that from 20 to 25 gm. of glucose were required per hour to maintain the blood sugar at a satisfactory level.

At exploratory operation the pancreas was found to be enlarged and hard. The body and tail were irregular but the head was almost normal. The pancreatic tumor had metastasized to the right lobe of the liver. On account of the presence of choleliths a cholecystectomy was done.

After the operation the amount of sugar necessary daily increased until it reached 1 kgm. The patient died suddenly eighteen months after the first attack of hyperinsulinism. The findings at autopsy suggested that the insular tumor of the pancreas and especially its hepatic metastases which are much richer in young and active cells continuously put into the circulation an insulin secretion normal or modified which was not controlled by the nervous system.

The author believes that when the diagnosis is made before the occurrence of metastases in cases of this type the crisis of the pancreatic lesion is the logical treatment. Two cases reported in the literature confirm this opinion.

In five cases of hyperinsulinism reported in the literature pancreatectomy was performed without incident. In four only partial temporary or doubtful benefit resulted but in one which is discussed in detail a complete cure was obtained. In the mild forms the number of meals and their carbohydrate content should be increased. PAGE

Perrotti G. Attempts at the Surgical Cure of Experimental Pancreatic Diabetes by Suppanalectomy (Technical description of the procedure). J. Surg. Med. 1933, 63.

The author reports experiments carried out on dogs with regard to the relationship between the pancreas, the suprarenal glands and hyperglycemia. Total pancreatectomy alone resulted in severe hyperglycemia whereas pancreatectomy performed simultaneously with or after unilateral suprarenal ectomy was followed by only a very slight hyperglycemia. Moreover the very marked hyperglycemia which followed total pancreatectomy was greatly reduced by unilateral suprarenalectomy. This effect of unilateral suprarenalectomy was temporary because of the compensatory hypertrophy of the remaining suprarenal gland.

Perrotti concludes that in dogs there is a hormonal antagonism between the cortex of the suprarenal glands and the pancreas. A. Louis Ros MD

Stetten D W. Subacute Pancreatitis or So Called Acute Edema of the Pancreas. J. Surg. 1933, 93.

Stetten concludes that there is sufficient evidence toarrant the belief that a subacute or mild pancreatitis or so called acute edema of the pancreas occurs as a pathological and clinical entity independent of gall bladder diseases though probably due to some primary disturbance in the biliary system. It seems probable that this condition is a forerunner of acute hemorrhagic or necrotic pancreatitis and possibly also of the chronic varieties of pancreatitis. He believes that the clinical picture of this form of pancreatitis is sufficiently typical for a diagnosis to be made in most cases. Early operative interference is indicated usually cholecystectomy with splitting of the peritoneum overlying the pancreas and drainage of the surface of the gland, the approach being made preferably through the gastrophrenic omentum.

The discussion of this report indicates that a diagnosis of subacute pancreatitis cannot be made easily. Some of the surgeons questioned the advisability of doing a cholecystectomy in cases in which the gall bladder is perfectly normal when the possibility of an acute pancreatitis arising from causes outside the biliary system is admitted.

ELIAS NORTH

Eliason E L and North J P. Acute Pancreatitis. J. Surg. 1933, 93.

Eliason and North state that acute pancreatitis is not so rare as is generally believed. They report their experiences with thirteen cases which they treated during a period of five years.

The cause of the condition is still doubtful although many have worked on the problem. The authors agree with Jones that there are probably two types—a mild form associated with cholelithiasis in which infection enters the pancreas by way of the lymphatics and a severe form with massive hemorrhage which is due to ductal entrance of the infection. In both types there is injury to the pancreatic tissue causing conversion of trypsinogen to trypsin which digests the tissue.

The gross characteristic features of acute pancreatitis are a brownish peritoneal edematous patch of fat necrosis and greenish edema of the omentum and retroperitoneal tissue.

The diagnosis is so difficult that of a series of 23 cases reported in the literature a correct preoperative diagnosis was made in only 31 per cent. The characteristic symptoms are:

1. Epigastric pain usually radiating to the back at the same level or to both shoulders. It is very severe but undergoes remissions which allow the patient to resume his work, thus differing from the pain of acute perforation and biliary colic. During the attacks of pain the patient assumes a position of moderate relaxation, the right lateral decubitus position.

2. Persistent vomiting

3 Shock This occurs usually in the fulminating cases

4 Slate gray cyanosis of the upper part of the body This has been seen in 40 per cent of the cases and is pathognomonic

5 Constant tenderness

6 A high leucocytosis

Rigidity is seldom marked and a mass is found only in late cases with a cyst or abscess. Contrary to general opinion glycosuria is seldom present.

In the treatment given by the authors all necrotic pockets are opened with the blunt forceps or cautery and drainage is established with soft cigarette drains. The advisability of coincident biliary surgery depends upon the pathological changes found and the patient's general condition.

Danish surgeons prefer expectant treatment operating only in cases of peritonitis or abscess formation. In the cases in which the authors operated immediately the mortality was about 75 per cent whereas in all of those in which they deferred operation recovery resulted. In addition to the immediate hazard of surgery there is danger of post-operative complications. The latter include (1) secondary hemorrhage due to tryptic digestion of the vessel walls (2) Whipple's syndrome of pancreatic asthenia (3) persistent sinus and (4) ventral hernia. Recurrences and residual abscesses are not uncommon. Most of these complications are due to the operation itself. The authors therefore conclude that as in acute cholecystitis and acute salpingitis operation should be deferred until after the acute phase if possible.

MAURICE L. DALE M.D.

Petridis P. Egyptian Splenomegaly (La spléno-mégalie égyptienne) *Ann d'iat path* 1930 vii 637

Petridis reports with considerable detail two cases of Egyptian splenomegaly in natives of Egypt and discusses the disease from various standpoints.

This condition which resembles Banti's disease or splenic anemia is frequent in Egypt. It is found in 10 per cent of autopsies on natives performed at the government hospital at Cairo and accounts for 7 per cent of hospital admissions. It is most frequent between the ages of thirty and thirty five years but of the author's eight personal cases three were those of children. The disease is apparently contracted in childhood or youth and becomes stationary in adult life. It is found almost exclusively in the poor rural classes and almost never in the well to do classes or Europeans resident in Egypt.

It has three stages. In the first stage the cardinal sign is an increase in the size of the spleen. This increase is slow insidious and painless. Irregular fever occurs in more than 20 per cent of the cases and precedes the splenic enlargement. In the second stage the splenomegaly becomes accentuated and hypertrophic cirrhosis of the liver and pain are added to the syndrome. In the third stage the liver atrophies and ascites appears. Splenectomy gives

good results in the second stage but is strictly contra indicated in the third stage. It is with the appearance of ascites that the condition becomes grave. According to Day the ascites may be caused by any one of the following four factors:

1 Advanced hepatic cirrhosis with destruction and degeneration of the parenchyma of the liver. Cases with this condition constitute the most important group.

2 Subacute hepatic cirrhosis with associated nephritis due to intestinal infection. Unless icterus appears this condition unlike the first is curable by appropriate treatment.

3 An exacerbation of the disease announced by an attack of fever or diarrhoea. In this condition also the ascites may be cured.

4 Heart failure in older patients.

Rickets and parasitic diseases are frequently found with Egyptian splenomegaly and bronchitis and pneumonia are usual after operation.

The pathological anatomy of the disease is discussed at length and illustrated by a colored plate showing fibrous foci with ferruginous incrustation in the liver. Day believes that Egyptian splenomegaly is a manifestation of schistosoma mansoni infection. He holds that the hypertrophy of the spleen is secondary to the cirrhosis of the liver. Petridis found the eggs of the schistosoma in the liver in one of his cases and agrees with Day that this parasite is the cause of the disease. He holds that the fungi reported as being present in the spleen represent only a secondary infection. The condition shows marked similarities to Japanese splenomegaly the pathogenic agent of which is recognized as being the schistosoma japonica.

FLORENCE A. CARPENTER

Warner E. C. Advanced Banti's Disease Treated Successfully by Ligation of the Splenic Vein. *Proc Roy Soc Med Lond* 1930 xxii 1495

In the case reported ligation of the splenic vein was done because splenectomy would have been dangerous on account of the advanced stage of the disease. The ligation was followed by marked improvement in the general health. The blood count improved and the liver tolerance and function became normal. Since the operation the liver and spleen have remained the same size as before the veins on the abdominal wall are much smaller and there has been no re accumulation of ascitic fluid.

This case shows that when splenectomy is difficult (e.g. on account of adhesions) or might be fatal on account of a poor general condition ligation of the splenic vein has almost as good an effect and is rapidly performed.

HOWARD A. MCKNIGHT M.D.

Wright J. H. and Stevenson E. M. K. A Case of Primary Sarcoma of the Spleen. *Glasgow M J* 93 ci v i

Primary malignant disease of the spleen is very rare. The case reported by the authors was that of a woman fifty eight years of age who complained of constant pain in the left hypochondrium which

radiated upward to within a few inches of the armpit. Physical examination showed a large mass extending from the subcostal region to the umbilicus. The mass was hard and superficial and had a very irregular surface.

Autopsy revealed a grayish white tumor containing necrotic masses and cavities filled with a turbid yellow fluid. The neoplasm had extended to the adjacent structures but no metastases were found. Histologically the tumor seemed to resemble the endothelial sarcoma described by Ewing.

M HERBERT B A E M D

### MISCELLANEOUS

Morison J M W Diaphragmatic Hernia P  
A S M d L o l 930 65

The author first reviews the history of diaphragmatic hernia and abstracts cases recorded in the literature. He then discusses cases coming under his own observation.

Diaphragmatic hernia may be congenital or acquired. They are described as true or false according to whether or not they have a sac. They may result from a congenital defect at any time of life. Morison suggests the following classification: (1) gross structural defects (2) limited structural defect (3) eventrations (so called) (4) unilateral phrenic paralysis (5) thoracic stomach (6) eventration though no mal opening in the diaphragm (7)

lacerations of the diaphragm by wounds accidents or disease and (8) the sudden giving way of a congenitally weak part.

The diaphragm is pierced by numerous structures but the sympathetic trunk and the splanchnic nerves pass posterior to it. The openings of importance in the development of diaphragmatic hernia are the foramen quadratum in the right lobe of the central tendon for the passage of the inferior vena cava and the oesophageal opening in the muscular substance of the diaphragm posterior to the central tendon which is surrounded by a sphincter like arrangement of the crural fibers and transmits the thoracic nerves as well as the oesophagus. Among the most common diaphragmatic hernia are the para-oesophageal hernia which are first described by Morgagni. These may be congenital or acquired. Those of the congenital type may of course be classified as limited structural defects. They arise from faulty formation of the diaphragm in the oesophageal region.

The diaphragm is specially suitable for roentgenological investigation because of the contrast between its heavy shadow and the lighter shadow of the lung. In the majority of cases of diaphragmatic hernia roentgen examination makes the diagnosis certain. An early diagnosis is of great importance. There is always danger that a diaphragmatic hernia may become strangulated.

MORRIS H K M D

# GYNECOLOGY

## UTERUS

**Siegmund H.** The Dependence of the Uterine Musculature upon the Functional Phases of the Ovary. Experimental Observations on Animals. I. The Reaction of the Uterine Musculature During the Menstrual Cycle. II. The Reaction of the Uterine Musculature During Pregnancy and the Puerperium in the Rat (Ueber die Abhängigkeit der Uteri muskulatur von den Funktionsphasen des Ovariums. Teil I. Die Reaktion der Uterusmuskulatur während des Zykklus. II. Die Reaktionen der Uterusmuskulatur während der Gravidität und im Puerperium bei der Ratte). *Arch. f. Gyn. u. 1930* vol. 53, 583.

The author attempted to determine whether and to what extent the pseudocorpora lutea which in the infantile animal can be produced by implantation of anterior lobe of the pituitary or the injection of prolactin possess a biological function. His studies were based on the investigations of Knaus who demonstrated that in the rabbit the hormone of the corpus luteum inhibits the action of the internal secretion of the posterior lobe of the pituitary on the musculature of the uterus. However it was found that the uteri of rats on which the experiments were to be conducted react entirely differently from the uteri of rabbits. While the rabbit uterus shows throughout the period of functioning of the corpora lutea a constant loss of tonus and contractility which cannot be influenced even by the artificial administration of pituitrin these signs are entirely absent in the rat. In the rat an immediate and marked increase in tonus can be obtained with pituitrin in all stages of the oestral cycle. Hence in the menstruating rat in contrast to the rabbit no antagonism between the posterior lobe of the pituitary and the corpus luteum in their effect on the uterine musculature is demonstrable. At the time of the functioning of the corpora lutea (metoestrus) in the rat a sluggish but regular course of waves is observed when no corpora lutea are functioning at the time of oestrus the muscle action is lively and irregular. It shows an increased power of motion with a diminished tonus.

The second part of the investigation supplemented the results of the first part as it showed that even at very different periods of gestation the rat uterus reacts to the internal secretion of the posterior lobe of the pituitary invariably with increased tonus which also is in contrast to the findings of Knaus in studies on rabbits. For these investigations the non-pregnant horn of unilaterally castrated rats in different stages of pregnancy were used. The increase in weight of the sterile horn was very slight. From this it may be concluded that in addition to

the general hormonal growth stimulus a special local stimulus proceeding from the ovum is effective. The difference in the supply of both horns is the more marked the greater the number of ova and hence the greater the number of sites of hormone production there are in the gravid horn. Curves of the tonus contractility and movement of the uterine muscle during the different phases of gestation show little that is characteristic.

On the basis of his experiments the author assumes that the corpus luteum does not exert the same influence on the uterus in the rat as in the rabbit. Possibly there is a difference between the internal secretion of the corpora lutea of rabbits and rats. However the corpora lutea are not dispensable during pregnancy even in the rat for when they are removed the fetus always dies. The difference in sensitiveness to pituitrin found by the author in the uterus of the rat and rabbit constitutes new evidence for the varying often opposite reaction of the same organ of different mammals to the hormones of similar endocrine glands. E. PHILIPP (G.)

**Puente J. J.** Syphilis of the Cervix of the Uterus (Sífilis de cuello de útero). *Bol. Soc. de obst. y ginec. de Buc. Aires* 1930 ix, 24.

The author reviews the cases of syphilis of the cervix which have been seen in a period of ten years at the Rivadavia Hospital in Buenos Aires. He believes that syphilitic lesions of the cervix would be discovered more frequently if a thorough search were made for them more often.

The lesions are divided into the three groups: primary, secondary and tertiary. The primary lesions are subdivided into the papular ulcerative and hypertrophic forms of chancre. The papular form is the most common and the ulcerative type the least common. The initial lesion is indolent and may cause only slight or no symptoms. In some cases it is associated with leucorrhoea, menstrual disorders or occasional slight pain. It must be differentiated from cervical erosion, herpes, tuberculosis, carcinoma and ulcer. The clinical diagnosis is based on the appearance of the lesion, the demonstration of the spirochete, the history and any symptoms that are presented. Because of the anatomical adenopathy can be demonstrated only with great difficulty. Histological study of a section shows characteristic pathological changes. The Wassermann reaction is positive about as frequently as in cases of primary syphilitic lesions elsewhere.

The secondary lesions are divided into the erosive, papular and ulcerative forms. The ulcerative are the least common of the three.

The tertiary lesions include the various gummatous forms.

In cases of secondary and tertiary lesions the symptoms and pathological changes follow those of syphilitic lesions elsewhere on the genitalia

DAVID A CLEVELAND M D

Watkins R E Hydatidiform Mole and Chori-epithelioma A Report of Thirteen Cases  
J S g 93 04

Watkins states that hydatidiform mole should be suspected when bleeding occurs during the first trimester of pregnancy in association with abnormal enlargement of the uterus for the given stage of the pregnancy. The passage of a cyst makes the diagnosis certain.

A woman who has passed a hydatidiform mole should be kept under close observation for signs of developing chorionepithelioma e.g. hemorrhage and enlargement of the uterus. Scrapings obtained by curettage cannot be relied upon. The clinical findings are more important. Eighty-four per cent of women who expel a hydatidiform mole recover spontaneously. Radical surgery such as hysterectomy is not justified unless symptoms of malignancy develop. Chorionepithelioma should be treated by complete removal of the uterus and ovaries unless metastases have occurred.

Hydatidiform mole occurs once in 398 pregnancies and chorionepithelioma once in 13800 pregnancies. The author reports 13 cases of mole and one case of chorionepithelioma following mole.

R LANDS CR M D

Bonanno A M The Bacterial Flora in Carcinoma of the Uterus After Radium Therapy (L. Battaglia, C. Omdahl, T. Ross, P. L. Dumitrap)  
R d l d 93 89

From studies made in twenty cases of carcinoma of the uterus the author has come to the conclusion that the bacterial flora in this condition is very variable. Of the cases reviewed staphylococci were found in 18, bacteria of the colon type in 5, saccharomyces in 12, micrococci in 10 and streptococci in 7.

In many of the cases the suppuration, as reduced and the bacterial flora changed after radium treatment. In some cases there was an increase in the hemolytic and proteolytic powers of the organisms having these properties.

Tumors of the cervix with a rich bacterial flora and profuse suppuration are not affected by radium therapy to the same degree as those with a poor flora.

In the twenty cases reviewed even those with a bacterial flora including streptococci, radium therapy never caused local or general septic complications.

MAR IN J DI COLA M D

Begouin Radical Abdominal Hysterectomy for Cancer of the Cervix Uteri Results After from Ten to Twenty Five Years (C. A. Duval)  
hy té t m abdom. le él g Ré itats de  
à 5 ) B d h 93 No

In 15 Wertheim operations performed by the author in the period from 1904 to 1918 the operative

mortality was 8 per cent. Of the 40 patients he has been able to trace 20 are dead and 20 are cured. Of the 20 who are cured 5 were operated upon more than twenty years ago, 5 more than fifteen years ago, 5 more than twelve years ago and 5 more than ten years ago. When for comparison of the incidence of cure with that following radium treatment which has practically no immediate mortality the operative deaths are included with the recurrences in the calculations the incidence of cure was 43.48 per cent.

The slight difference between the number of survival after five years and after ten years justifies the acceptance of the five year period as the criterion of cure. The author has been able to find records of only 9 cases among 1936 in which there was a recurrence after five years. After ten years recurrence is extremely unusual.

There are surgeons and pathologists who believe that it is not possible to speak of a cure of cancer. Impressed by a few late recurrences after very long periods they are unwilling to believe that anything beyond a clinical cure is obtainable. This is an error because cancer has been definitely proved to be a local disease which can be eradicated in its early stages. While occasionally emboli escape to develop years later emboli may escape also in hysterectomy for fibroma. In the first instance the effects are seen only after a period of years whereas in the second they become evident within twenty days. However this accident does not preclude the occurrence of true cures.

ALBEE F D GROTT M D

#### ADNEXAL AND PERIUTERINE CONDITIONS

Watkins R E and Wilkin W M Primary Gynecoma of the Fallopian Tubes  
S g Gy &  
Ob t 93 1 5

The authors state that primary carcinoma of the fallopian tube is a rare disease. Only about 200 authentic cases have been recorded in the literature. The age incidence of the condition is the same as that of cancer in general.

The cause is unknown but it is the opinion of many that the chronic salpingitis commonly associated with the disease is a predisposing factor.

There are no characteristic physical signs or symptoms. The most constant sign is a vaginal discharge which at times is tinged with blood.

The diagnosis has been made only once before operation (by Falk). In a large percentage of cases the disease is neither recognized nor suspected at operation. The case reported by the authors demonstrates the importance of immediate section and inspection of extirpated pelvic tumors.

The treatment indicated is radical extirpation of the uterus and adnexa.

The prognosis is poor. Only 1 patient has survived the fifth postoperative year.

Macroscopically the disease resembles a chronic inflammatory condition of one or both tubes which is often undistinguishable from pyosalpinx or hydro-

salpinx When the tube is opened a friable papilomatous growth is usually found

Microscopically the lesion is a papillary or papillary alveolar type of tumor The primary disturbance appears to be a malignant hyperplastic change in the cylindrical epithelium of the tube The subadjacent ovary is frequently involved and retroperitoneal lymph gland metastases are common

CARL H DAVIS M D

Meyer R. Tubular (Testicular) and Solid Forms of Andreioblastoma of the Ovary and Their Relationship to Masculation (Tubuläre testikuläre und solide Formen des Andreioblastoma ovarii und ihre Beziehung zur Vermännlichung) *Beitr. path. Anat. u. allg. Path.* 193, lxxxiv 485

After brief reference to the few tumors of the type under discussion which have been reported in the literature to date the author discusses his own material—one case of typical and six cases of atypical tubular (testicular) adenoma of the ovary

Meyer's case of typical tubular adenoma was that of a woman forty four years of age who had borne one child had had two abortions and had been subjected to hysterectomy for carcinoma of the uterine cervix Six months after the operation the patient was referred for roentgen irradiation and three and a half months later she died from metastases in the brain Autopsy disclosed a tumor of the ovary as large as a child's head On microscopic examination the neoplasm was found to show in some areas the structure of a tubular adenoma but to be mainly a solid small celled carcinoma In this case there was no masculinization

The first of the author's cases of atypical tubular (testicular) adenoma of the ovary was that of a girl sixteen years of age who had menstruated regularly for two years and then developed an ovarian tumor causing menstrual irregularity She had a male gait and a deep male voice Her breasts were poorly developed The genital hair and external genitals were of the female type After operation for the removal of the ovarian tumor menstruation again became regular the girl appeared to be in robust health and the pitch of her voice became considerably higher On microscopic examination the tumor was diagnosed by one pathologist as a so called alveolar sarcoma However the author noted twisted columns and atypical tubules and concluded that it resembled the typical tubular adenoma most closely although it showed a transition to the atypical diffuse carcinoid and carcinoma

Case 2 was that of a woman twenty three years of age who a year previously had had irregular hemorrhages and for nine months had had amenorrhea Her voice was strikingly rough but her general appearance was delicate She was small and pale Her breasts were underdeveloped At operation an immovable cystic tumor the size of an ostrich egg was removed from the right ovary Death occurred nine months later from recurrent tumors in the abdomen The patient retained her rough voice

and was sullen and unsociable up to the time of her death Microscopic examination of the tumor showed in addition to areas suggesting alveolar sarcoma in the epithelial cell proliferation tortuous and dilated tubules and irregular strands of cells

Case 3 was that of a woman sixty six years of age who was operated upon for a tumor of the left ovary the size of a small fist For over a year she had had a deep hoarse voice After the operation her voice became and remained clear On microscopic examination the tumor was found to be of an atypical type with tubular portions in only certain areas but showing at the periphery polygonal epithelioid cells with drops of fat which closely resembled interstitial cells

Case 4 was that of a woman twenty four years of age who had had amenorrhoea for sixteen months and enlargement of the thyroid for three years For one year her voice had had a masculine tone Her upper lip chin and thighs were very hairy During the last six months the pubic hair had grown up to the umbilicus A tumor the size of a man's head was removed from the right ovary Four weeks after the operation menstruation recurred and since then has been regular The signs of masculinization gradually disappeared but the voice has remained deep On microscopic examination the tumor was found to be an atypical tubular adenoma which was partly carcinomatoid and partly sarcomatoid and contained mucous epithelial cysts Between the epithelial portions there were groups of lipoid containing epithelioid cells which may be described as interstitial cells

Case 5 was that of a woman who had been subjected to thyroidectomy two years previously and had suffered from amenorrhoea ever since that operation About three months previous to her examination by the author she had genital bleeding which lasted for about eight days Four weeks later the hemorrhage recurred Since then there had been a rapid increase in the size of the abdomen Soon after the thyroidectomy there was a marked increase in the hair on the body and face The patient was obliged to shave every second or third day Her voice became rough and deeper A tumor measuring 30 by 16 by 12 cm. and weighing 2450 gm. was removed from the right ovary After the operation the bursitis gradually disappeared and the voice became clearer Four weeks after the operation menstruation recurred and since then has been regular Microscopic examination showed the tumor to be an atypical slightly tubular but more strand shaped neoplasm which was carcinomatous and partly sarcomatous and contained mucous epithelial cysts

Case 6 was that of a woman thirty five years of age who was operated upon in 1924 for a tumor of the right ovary Up to the time of her marriage the patient had menstruated regularly Thereafter menstruation was irregular but she became pregnant four times After her fourth labor she did not menstruate for six years At the end of that time irregular hemorrhages occurred and for three months

previous to the time that she was examined by the author she had continuous bleeding for two years her voice had been very deep and her arms and legs very hairy. After the removal of the ovarian tumor the excess hair disappeared very rapidly but the voice remained unchanged. On microscopic examination the neoplasm was found to show the structure of an atypical tubular tumor of the ovary but was chiefly a carcinomatous solid tumor. In some areas it resembled the cylinthromatous granulosa cell tumor.

The author calls attention to the fact that among the numerous tumors of the ovary a large group related to the parenchyma of the gonads have been differentiated. These are (1) the granulation cell tumors (2) the large cell solid carcinomata occurring in the young girls and pseudohermaphrodites and (3) the tubular adenomata with their transitions to tumors of solid form (case of Csisler-Hallban and Sellheim). The morphology of each group is probably determined by the lesser or greater maturity of the tumor germ. However the different cellular material of the gonadalanlage is a very special one. The earliest stage of the indifferenced involutional special type of hermaphroditism sexual ambivalence. It is apparent that an incompletely part of the germinal epithelium in the ovary may still give rise to tubular formations in later life. Moreover tubular proliferations in the testis do not necessarily originate in completed testicular tubules. A tubular lesion at the site of a female gonad does not necessarily indicate the presence of a hermaphroditic gland. However the author recognizes such a possibility. On the basis of these observations Meyer has given these tumors also a special name. He designates them as androblastomata because he wishes to call attention to the fact that they resemble not the testicles but only the cells that show a tendency toward masculinity. The androblastoma of the ovary may arise from cells which originally hermaphroditic and later tended toward masculinity. Masculination is due to the selection of an internal secretion of tumor cells with specifically male attributes. Tumor with female attributes especially granulosa cell tumors cause feminization manifested by early maturity of children and pathological genital maturity in senile women. On the other hand the large cell solid carcinomata of both sexes produce no heterosexual characteristics. Hall O N V (C)

B. Besant P. ntz Lazare C. T. O. J. g. n. f. Krukenberg Tumor of the Ovary (Et al.) in g. ed. lat. m. K. uk. b. g. d. l. ) C. l. i. b. i. 93 465

As a result of careful studies of a case of Krukenberg tumor of the ovary and a review of the literature pertaining to this type of neoplasm the authors conclude that there is no reliable evidence to substantiate the view that Krukenberg tumors represent metastases from a primary carcinoma arising in the digestive tract. They reject most of the cases reported in the literature as inconclusive because

the autopsy reports for the most part did not include detailed macroscopic and microscopic descriptions of all of the abdominal viscera and their peritoneal coverings. They emphasize the importance of a careful study of the peritoneum because the case they report showed that they consider evidence of a primary adenocarcinoma arising from the peritoneum. This case presented an extensive involvement of all of the abdominal and pelvic organs as well as the distant lymphatics. The authors were able to distinguish two types of carcinomatous change.

1. Differentiated mucinous cells forming glandular structures (adenocarcinoma) located beneath the peritoneal surfaces of the stomach, ovary, spleen and liver.

2. Undifferentiated polymorphous mucinous cells (signet ring cells) which spread diffusely through the deeper layers of the intestine, stomach, and lymph nodes.

The authors consider these two distinct types of involvement as different manifestations of the same condition and are of the opinion that the diffuse signet ring type represents merely an advanced stage of a leucocarcinoma which has become progressively more undifferentiated as it has gained in age and malignancy.

Studies of the original case reported by Krukenberg and of the case reported by Cohn and Scheel failed to reveal primary neoplasms arising from the mucosa of the gastrointestinal tract. The authors believe therefore that these cases substantiate the view of the peritoneal origin of Krukenberg tumor.

H. ROLD C. M. C. M. D.

## MISCELLANEOUS

Cannon D. J. Recent Advances in the Physiology of Menstruation. B. I. M. J. 93

In the lower animals the estrous and menstrual cycles, the sexual intercourse and the reproductive cycle or the phase of pseudopregnancy. Males believe that in man and the monkeys the sexual cycle has disappeared altogether but Cannon agrees with Marshall that in the human being pregnancy develops at the phase of pseudopregnancy coincident. In the human subject the anterior pituitary gland the alpha pituitary during hormone and the special hormone of the corpus luteum is reduced. The former takes on probably a hyperemia during a secretory function and the latter produces the menstrual decidua.

The alpha pituitary gland hormone as well as the follicle ripening depends upon a hormone formed by the anterior lobe of the pituitary gland. Evans and Simpson have demonstrated that the uterine hormones in the anterior pituitary on human anterior and maturity producing effect and the other having a luteinizing and corpus luteinizing effect. Wehner has described these two hormones and has called them the alpha and beta hormone. He has shown that the administration of both alpha and

beta hormones inhibits ovulation. This indicates that the beta hormone is active only during pregnancy or pseudopregnancy.

The author epitomizes the human menstrual cycle in terms of modern endocrinology. The alpha hormone of the pituitary gland stimulates the ripening of the follicles and leads to ovulation while it activates the œstrus producing hormone responsible for the gradual development of the endometrium which is characteristic of the interval phase. The œstrus producing hormone combined with the luteinic hormone of the corpus luteum which has been activated by the beta hormone of the pituitary gland produces the full series of changes which constitute the premenstrual phase of the human menstrual cycle. The degeneration of the corpus luteum is followed by decidual necrosis or menstruation. Menstruation is undoubtedly the result of withdrawal of the hor-

mone support of the corpus luteum. The degeneration of the corpus luteum is brought about by withdrawal of the protective influence of the beta hormone of the pituitary. If the ovum becomes fertilized the trophoblastic cells of the latter prevent degeneration of the corpus luteum by stimulating the production of more beta hormone. Therefore the pregravid endometrium instead of necrosing undergoes further development and the corpus luteum develops into the corpus luteum of pregnancy.

The author shows that the periodicity of the human menstrual cycle does not depend on the ovum. He believes it is due to the harmonious adjustment of many ductless glands the disturbance of any one of which may disturb it and that if we could explain all of the factors concerned in this nice adjustment we would solve the mystery of life.

T. FLOYD BELL, M.D.



# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Aburel E. The Death of One Fetus in Twin Pregnancy (La mort d'un jumeau au cours de la grossesse gémellaire). *Rev. f. c. d. g. l. id. hst.* 1935, 7, 50

Aburel reports six cases of intra uterine death of one fetus of a twin pregnancy. Such cases are usually difficult to explain as pathological states capable of causing fetal death (syphilis, chronic nephritis, tuberculosis) must be of low grade and slow development to affect only one fetus and permit the other to develop normally. The unequal effect probably depends upon unequal resistance of the twins to pathological processes. In some instances the lowered vitality of one fetus is due to an accident such as the formation of a knot or loop in the umbilical cord or a malformation. While the incidence of fetal death appears to be the same among monozygotic and dizygotic twins it is strikingly higher among females than among males.

The death of one fetus occurring close to term can usually be diagnosed before labor from the onset of vomiting, a diminution of fetal movements, a softer consistency of one fetal body on abdominal palpation, a ray of evidence of fetal death, and the characteristic chocolate colored amniotic fluid. Fetal death occurring during the earlier months of pregnancy is often overlooked although attacks of vomiting failure of the uterus to enlarge at the same rate as before and regression in the size of the uterus are pathognomonic and chocolate colored amniotic fluid is present at the time of delivery.

The author has never observed the onset of lactation at the time of fetal death. He believes that lactation is inhibited by the presence of the living fetus in the uterus.

As a rule delivery is uncomplicated, the living twin being born first. In the author's cases the living fetus was never affected by the presence of the dead twin and was always normally developed.

HAROLD C. MACK, M.D.

Schewket F. Spontaneous Expulsion of the Necrotic Tibia of a Fetus Through the Abdominal Wall in an Extra Uterine Pregnancy (Tissue spontané d'un fœtus extra-utérin à travers la paroi abdominale). *Bull. Acad. Méd. Paris* 1935, 110, 1033.

The patient whose case is reported was that of a woman thirty years of age who had had several stillbirths. During her last pregnancy she felt fetal movements up to the seventh month. Early in the seventh month she experienced severe pain in the lower part of the abdomen and hemorrhages from the vagina. These soon ceased and from the tenth

to the sixteenth of the tenth month there were absolutely no symptoms. The pains then recurred and a slight inflammatory zone appeared below the umbilicus. About fourteen days after the application of compresses a large amount of pus escaped at this site and thereafter the fistulous opening persisted for several months with an abundant secretion of pus.

On the patient's admission to the hospital examination disclosed a firm mass in the lower abdomen which extended up to the umbilicus. Pus and air bubbles escaped from the fistula. The tumor did not extend into the pelvis. There was no fever. The Wassermann reaction was strongly positive.

On the fourth day after the patient's admission to the hospital a bone which proved to be a fetal tibia emerged from the fistula. After dilatation of the mouth of the fistula the presence of a fetus was confirmed by finger palpation. The fetus was then extracted. The tibia and fibula were found denuded of their soft parts but the foot was still covered by soft tissues. The patient recovered. BOON (Z)

Katayama S. The Reticulo-Endothelial System in Obstetrics and Gynecology. *J. J. Obst. & Gynec.* 1935, 30, 356.

The existence of the reticulo-endothelial system was first established by Aschoff and Kiyono in the last century. This system is made up of cells distributed all over the body which include the endothelial cells of the vascular system, the spleen and the lymph spaces and glands, and ordinary connective tissue cells. It is concerned with absorption, the formation of immune bodies, regulation of the metabolism, blood formation and destruction, the production of ferments and bilary pigments, detoxication and blood coagulation. Its function is studied most frequently by so-called blocking with a foreign substance and by extirpating the spleen.

During pregnancy the cells composing the reticulo-endothelial system are greatly increased but the function of the system is weakened especially in the toxæmia of pregnancy.

After blocking the functional restoration of the system is slow in pregnancy as compared with the non-pregnant state.

In a study of the function of the reticulo-endothelial system against toxins and drugs it was found that when a small quantity of colloid was injected from eight to twenty-four hours before the injection of a large quantity of the same colloid the resistance to the larger quantity was increased. The knowledge of this effect is useful in therapeutics.

An important function of the placenta is to make the products of metabolism of the fetus innocuous

to the maternal body and the fetus. Experiments in which this was proved are cited. The placenta has this detoxicating function in no less degree than the spleen and liver. When the function of the reticulo-endothelial system was blocked the detoxicating power of the placenta was markedly weakened.

In studies of the pigment absorbing function of the liver and spleen in pregnancy by the injection of Congo red it was found that the accumulation of Congo red in the reticulo-endothelial system of the spleen and liver decreases gradually and that the reticulo-endothelial system undergoes functional disturbances as pregnancy progresses.

The author cites the findings of many investigators on the function of the reticulo-endothelial system as determined by the use of Congo red.

The Congo red test of the function of the reticulo-endothelial system is of value in the prognosis of the toxæmia of pregnancy. In cases of poor elimination the symptoms tend to be more severe the day after the test whereas in cases with good elimination they gradually subside.

In conclusion the author says that the reticulo-endothelial system plays such an important part in relation to certain processes that it must be taken into consideration in the prevention, treatment and prognosis of diseases. In pregnancy the functions of the system are decreased or are kept normal with difficulty. Functional disturbance of the reticulo-endothelial system leads to incomplete functioning of the placenta. Hydrops gravidarum is due to a functional disturbance and the toxæmia of pregnancy to a decompensation of the function of the reticulo-endothelial system. The solution of the problem of toxæmia of pregnancy depends to a great extent on the study of the reticulo-endothelial system.

T. FLOYD BELL, M.D.

## LABOR AND ITS COMPLICATIONS

Gwathmey J. T. *Obstetrical Analgesia. A Further Study Based on More Than 20,000 Cases.* *Surg. Gyn. & Obst.* 1930 li 190.

Gwathmey states that his simplified technique for obstetrical analgesia is absolutely safe even when used by the novice does not prolong the course of labor and has no unfavorable after effects. It has given relief in 90 per cent of the cases in which it has been employed and in cases in which labor is retarded by a posterior or transverse position of the head it is of value because of the rest it affords the patient. It is of advantage also because the drugs employed are inexpensive and readily obtainable at any drug dispensing agency. The only known contra-indications are colitis, true diabetes and auditory disturbances.

The technique consists of three intramuscular injections of 2 c.c. of a 50 per cent solution of magnesium sulphate, an injection of  $\frac{1}{4}$  gr. of morphine sulphate given with the first injection of magnesium sulphate and a rectal instillation of 20 gr. of quinine alkaloid, 40 min. of alcohol  $\frac{2}{3}$  oz. of ether

and liquid petrolatum or olive oil in an amount sufficient to make 4 oz. The author gives his reasons for the use of each drug employed.

ARTHUR H. KILAWANS, M.D.

Brouha M. *The Test of Labor in the Management of Cases of Contracted Pelvis (L'preuve du travail dans le traitement des bassins limités).* *Revue française de gynécologie et d'obstétrique* 1930 xvi 449.

As the classical cesarean section may be performed with safety only before or very shortly after the onset of labor, many unnecessary prophylactic sections have been performed in cases of contracted pelvis in which delivery by the natural route might have been possible if a test of labor had been carried out. Since his adoption of the low cesarean section which he considers a relatively safe procedure even after labor has been in progress for some time, the author has prescribed a test of labor for all cases of contracted pelvis in order to reduce the number of operative deliveries to the minimum. His series of ninety-four cases of contracted pelvis (conjugata vera 8 to 9.5 cm.) treated in the period from 1927 to 1929 showed a progressive decrease in the incidence of cesarean section from 46 per cent in 1927 to 20 per cent in 1929. The frequency of the operation for the various degrees of pelvic contraction was as follows:

|  | Ce<br>(P) | t f<br>(se) |
|--|-----------|-------------|
| Conjugata vera 9.5 cm.                                       |           | 20          |
| Conjugata vera 9.0 cm.                                       |           | 44          |
| Conjugata vera 8.5 cm.                                       |           | 57          |
| Conjugata vera 8.0 cm.                                       |           | 70          |
| Asymmetrical pelvis (congenital dislocation of hip coxalgia) |           | 15          |

The frequency of cesarean section in the entire group (37 per cent) was definitely lower than in a similar group of cases treated without a previous test of labor. In the cases in which delivery was effected by the natural route there was no maternal mortality. While the author admits that three fetal deaths in this group might have been prevented if cesarean section had been performed in all cases, he believes that this would have necessitated at least fifty unnecessary cesarean sections.

HAROLD C. MACK, M.D.

Demelin L. A. *Notes on the History and Mechanism of Forceps. Preference for Models with Uncrossed Blades (Notes d'histoire et de mécanisme sur les forceps. Étude de préférence dans ses modèles à branche non croisées).* *Revue française de gynécologie et d'obstétrique* 1930 xvi 289.

The author presents a brief survey of the history and mechanism of obstetrical forceps with reference particularly to the mechanical principles involved in two types: (1) those in which the blades are crossed and articulated at the point of crossing and (2) those in which the blades are uncrossed and are articulated at the end of a cross bar. Demelin believes that the latter type, originated by Chas. Sagny, is the less dangerous. It includes a long and

flexible traction device which in Demel's opinion is superior to the axis traction device originated by Tarnier. Demel has constructed a model based upon the principles of the Chassagny forceps which he shows in illustrations. HAROLD C. MCKIM, M.D.

Ammann, E. von. The Mortality of Vaginal and Abdominal Methods of Delivery. In *Practica Prævia* (Die Mortalität der vaginalen und abdominalen Frühgeburtsmethoden bei Frühgeburten). Zittler, G. B. H. G. v. k. 93.

This discussion is based on the literature and the experiences of the Wuerzburg Gynecological Clinic. A maternal mortality of 0.7 per cent following vaginal packing shows that this method no longer has any justification. Moreover it appears advisable in both clinic and private practice to induce labor by rupture of the membranes alone whenever this is possible. An infant mortality of 63.2 per cent with the Braxton Hicks method in which the child's life is sacrificed to save the mother is not surprising. When cesarean section is done as an alternative to the Braxton Hicks procedure the results are not much better as cesarean section is performed in only the severe case.

Simple drainage of the foot in the child is entailed in improved infant mortality only very slightly. Intra-uterine metruysis which is suited

only for the hospital improved the infant mortality (54.2 per cent) only insignificantly. Cesarean section in addition to the latter procedure did not cause much improvement in either the maternal or the infant mortality. That the rarely practiced extra-uterine metruysis should show a higher mortality than intra-uterine metruysis is easily understood.

Versus and traction did not greatly improve the prognosis for the child and doubled the maternal mortality. It is therefore contra-indicated on principle. With simultaneous use of cesarean section the results were slightly improved. Vaginal cesarean section which caused a noteworthy improvement in the infant mortality without favorably affecting the maternal mortality is the preferred method of delivery of only a few obstetricians. Abdominal cesarean section with a maternal mortality of 7.3 per cent will not save more mothers than conservative measures and is to be preferred only when preservation of the child's life appears as especially urgent.

In conclusion the author questions whether cesarean section is going too far, whether the extended indications for cesarean section and whether it is not better to lift originally and in the interests of later fertility place in the background the life of the already injured child. W. R. B. SMITH, (G.)

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Lichtenberg A von The Surgical Treatment of Renal Insufficiency (Chirurgische Behandlung der Niereninsuffizienz) *Ztschr f urol Chir* 1930 p 99

Less is to be achieved by treatment in the uncomplicated forms of secretory insufficiency of the kidneys than in any other forms. The only result is the greater or lesser prevention of further progress of the condition. In cystic kidneys for example the evacuation of the cysts by laparotomy (Lap) relieves the pressure upon the kidney. Dietetic treatment is also beneficial and calculi and infection can be treated with good results. Many cases of bilateral calculous disease chiefly those with stones filling the renal pelvis belong to this group. These stones (mostly urates) are formed early in youth and are not suitable for surgical therapy. Only dietetic measures are applicable. Only with the advent of infection is operation to be considered.

The mixed forms of secretory insufficiency are those in which large bilateral losses of parenchyma are associated with some form of infection or stasis. The insufficiency is induced by a summation of noxae. As the disease picture varies greatly the surgical measures are based upon experience acquired in the treatment of single kidneys and are applied in the same way to the bilateral disease. In calculous disease function is often restored by treatment of the infection. In spite of theoretical objections clinical experience suggests that the insufficiency is due to the infection. To such cases belong those of chronic recurrent pyelonephritis. The pyelonephritic contracted kidney as the final stage of the disease readily responds to decapsulation and drainage. Secondary infection of the kidneys to chronic disease of the male or female adnexa can be cured by extirpation of the adnexa.

In insufficiency from congestion the involvement of the renal parenchyma appears to be a secondary factor. The site of involvement is the peripheral portions of the urinary tract. This type of insufficiency can be influenced favorably by relieving the peripheral obstruction. The attempt should be made to improve the function of the kidneys before removing the cause.

KOTT (Z)

Eisendrath D N Hydronephrosis Due to Obstruction of the Renal Pelvis by One of Two Main Renal Arteries *J U I* 1930 xv 173

In the case reported in this article symptoms of urinary obstruction had been present for a year. The right kidney was normal but the left kidney contained 30 c cm of clear residual urine and showed marked ectasis of the pelvis and calyces. The condition was attributed to obstruction close to the

ureteropelvic junction due to a lower pole vessel or ureteral stricture. As the symptoms were relieved by non surgical treatment operation was refused.

Following an acute neisserian infection with involvement of the left kidney the symptoms recurred. The ureteral urines were clear but the left kidney contained 100 c cm of residual urine and its function was definitely impaired. On X ray examination of the left kidney the shadow had not diminished at the end of twenty minutes. At the end of fifteen minutes a definite difference was observed in the density of the opaque medium below a convex line at the lower border.

At operation the left kidney was found extremely mobile. It presented marked ectasis of the pelvis which ended abruptly just above the opening into the ureter. The lower part of the pelvis was almost occluded by an artery arising from the aorta and passing to the lower pole.

The pelvis was divided at the obstruction and the distal segment which included the ureter was reimplanted. Nephrectomy was then done. However nephrectomy became necessary two weeks later on account of infection. The vessel which caused the obstruction was one of two main renal arteries. On injection it was found to supply a large area of the kidney.

The poor result of the operation was probably due to the recent infection and failure to drain the upper part of the pelvis.

Cases of obstruction of the renal pelvis by branches of the main renal artery have been reported by Gruber, Bing and Gregoire but this is the first recorded case of obstruction by one of two main renal arteries.

Ligation of a polar artery may be followed by necrosis. Numerous variations in the renal arteries have been found. According to the literature lower polar arteries from the aorta were found in 5 per cent of 1337 kidneys and 2 main renal arteries were found in 11 per cent of 1319 kidneys.

It has been claimed that abnormal mobility of the kidney plays an important part in obstruction due to blood vessels.

CLAUDE D. PICKRELL, M D

Lepoutre C The Treatment of Pyelitis and Pyelonephritis (Traitement des pyelitis et pyelonephrites) *Arch d mal d reins t d gene g it* 1930 5 1930 xv 624

The treatment of pyelitis and pyelonephritis should be preceded by a thorough examination of the genito urinary tract. As a rule restoration of the anatomical integrity of the urinary tract is sufficient to put an end to the infection. The author deals with cases which present no gross changes requiring surgical treatment and discusses in detail nearly all

of the various medical treatments that are employed—hygienic dietary hydrotherapeutic antiseptic local and biological—together with their special indications

Alkalinization gives excellent results. Potassium salts should be avoided as they provoke diarrhoea. Sodium bicarbonate should be employed in large doses. This has little effect on the pyuria but as a rule greatly relieves the general symptoms.

Of the urinary antiseptics urotropin is probably the most effective. As it acts only in an acid urine it should be combined with phosphoric acid or sodium benzoate. Because of the irritating effect of the formaldehyde which is capable of producing hæmaturia the author believes that the dose should not exceed 2 gm per day. However some urologists notably the Germans recommend as much as 8 gm per day. Urotropin may be given intravenously. Haemorrhagic forms of pyelitis do not constitute a contra indication.

Colloidal silver preparations have been administered internally (Marion and Kummer). They appear in the urine where they have an antiseptic action. The dose is 60 mgm.

Certain dyes notably acriflavine and mercurochrome appear to be of value when injected intravenously or applied locally.

Neosarsphenamine (0.15 to 0.30 gm given intravenously every five or six days) has been employed with considerable success. The manner in which it exerts its effect is not known exactly.

The balsamics are in general contra indicated except when the bladder symptoms are intense.

The favorable effect of the age of the bladder on pyelitis was first noted by Guyon. Lasteau demonstrated that this procedure provokes a reflex contraction of the renal pelvis and the ureter and causes changes in the urinary secretion. A tepid solution of water or boric acid is injected very slowly through a soft rubber catheter until discomfort is experienced. After a few minutes the catheter is removed and the patient allowed to urinate. Except in pyelitis of pregnancy the effects are very favorable.

Lavage of the kidney pelvis is a excellent result. Retention ureteral catheter may be employed under certain circumstances not only in pyelitis of pregnancy.

From both the practical and the theoretical standpoint opinions concerning vaccines have undergone radical changes in recent years. Formerly it was supposed that vaccines acted by stimulating the formation of specific immune bodies in the blood. Recent work seems to show that the so called immune bodies do nothing to do with immunity but represent incidental changes in the blood. It appears from the studies of Calmette and Besredka that immunity is largely a local phenomenon as Metchnikoff originally taught. However vaccines cause a non specific phenomenon of shock which as is well known may be of therapeutic value. The author discusses the various types of vaccines and their applications.

In the discussion of the use of sera the serum of Vincent receives most attention. This is a bacillus coli serum prepared by injecting horses with colon bacilli of urinary origin. Subcutaneous injections combined with injections directly into the pelvis of the kidney appear to give most excellent results.

In the use of bacteriophage a strain must be employed which is adapted to the invading organism. From 2 to 3 c cm are injected subcutaneously every other day. The maximum number of doses is four. At the same time from 10 to 20 c cm are given by mouth and a like amount is injected into the bladder to be retained as long as possible. No urinary antiseptics should be given. The urine should be alkaline.

Le Lorier and Legueu have obtained very satisfactory results with the vaccine bacteriophage of Potocki and Iisch. The bacteriophage solution is resorcin with organisms several times a product rich in bacterial proteins and bacteriophage being thereby obtained. This is ingested daily when the stomach is empty for ten days or until some effect is obtained or is given subcutaneously.

To produce shock for shock therapy electrargol peptone milk blood and sterile pus have been employed. The results are diversely evaluated.

In the management of various forms of pyelitis and pyelonephritis local treatment by ureteral catheterization occupies a prominent place especially in cases in which there is evidence of retention with high fever. Of the biological agents the serum of Vincent is recommended with the most assurance.

ALAN F. DE GROOT, M.D.

Mathé, C. P. The Differential Diagnosis and Modern Treatment of Pyelonephritis. *J. Urol.* 93.

This article is a review of 347 cases of pyelonephritis studied by the author in the past thirteen years. Mathé defines and differentiates between pyelitis and acute pyelonephritis. He states that the X-ray diagnosis of pyelonephritis is uncertain. However he reviews the usual recognized signs of inflammation of the calyces and renal pelvis.

The causes of pyelonephritis include intestinal stasis (enterorenal syndrome) foci of infection in the teeth and tonsils (green producing streptococci) the ears sinuses prostate seminal vesicles fallopian tubes uterine cervix and respiratory tract and urinary stasis in the upper urinary tract secondary to ureteral stones or strictures undue mobility of the kidney pressure on the ureter by an aberrant blood vessel adherent bands or a fetus or to valve obstructions in the posterior urethra congenital stenosis urethral stricture median bar formation hypertrophy of the prostate bladder stones neurological defects in the neck of the bladder or stones in the kidney.

In acute cases in which oedema frequently causes obstruction at the pelvic ureteral junction ureteral catheterization and lavage are indicated. In chronic pyelonephritis conservative treatment should be

tried first and surgical measures used if conservative treatment fails to give relief. The conservative treatment consists in the eradication of foci of infection and lavage of the renal pelvis through an indwelling ureteral catheter. The catheter should be changed about every three days. The solutions used for the lavage are silver nitrate, mercuriochrome, acriflavine and acid fuchsin. In internal medication methylene blue, caprocol pyridium and methenamine have been used to advantage. The surgical measures employed include drainage of the kidney, decapsulation, nephropexy and nephrectomy.

Of the 347 cases reviewed, only moderate improvement was obtained in 155 because it was impossible to clear up in the renal infection. In 45 there was no improvement. In 15 of the latter, nephrectomy was done on account of progressive kidney destruction.

MAURICE I. MELTZER, M.D.

Joyce J. L. A Study of Staphylococcal Disease  
The Renal Cases. *Guy's Hosp. Rep. Lond.* 1930  
lxxx 169

The author is of the opinion that staphylococcal infection of the renal cortex is blood borne and that perinephric abscess in this disease is due to direct extension of the infection from the renal cortex. He cites fourteen cases in support of these views. He states that the infection may remain latent for a long time and he manifested first by a fully developed abscess. As a rule, staphylococcal infections of the kidney will heal after incision and drainage. Occasionally recovery occurs spontaneously. In some cases, however, the disease progresses to complete destruction of the renal tissue.

The clinical features, diagnosis and treatment are discussed briefly.

C. RUTHERFORD O. CROWLEY, M.D.

Martin J. Mistakes in the Diagnosis of Renal Tuberculosis (Des erreurs dans le diagnostic de la tuberculose rénale). *J. d'urolog. ned. et chir.* 1930  
xxxv 556

Clinical and cystoscopic examination reveal probable signs of tuberculosis of the kidney such as stuhborn or recurrent cystitis, tubercle bacilli in the bladder urine, and ulcers in the bladder on the side of the diseased kidney. Catheterization of the ureters discloses such signs as the presence of pus and tubercle bacilli in the pelvis of a kidney with defective function. However, in spite of all modern methods of diagnosis, the surgeon often exposes a kidney that does not show the slightest sign of tuberculosis on inspection or palpation.

The author reports two cases in which he removed the kidney on the basis of the clinical and laboratory findings, although no lesions could be detected and the results seemed to justify the procedure. He reports also a case in which the urine from one kidney contained pus and tubercle bacilli, but it was the other kidney that showed defective function. He believes that in the first two cases very slight tuberculous lesions must have been present and that in

the third case some disease other than tuberculosis was responsible for the disturbance of function in the other kidney.

In conclusion, Martin urges all surgeons to publish any observations that may aid in the accurate diagnosis of the condition.

ALDO C. C. A. A.

Fredet M. The Present Day Surgical Treatment of Infected Renal Lithiasis (Traité actuel de la lithiase rénale infectée). *Ann. Chir. Urol.* 1930 x 868

Fredet discusses 5 operations: (1) extended nephrotomy, (2) pyelonephrostomy, (3) pyelonephrectomy, (4) pyeloplasty, and (5) nephrectomy.

Brongersma advises primary operation of conservative operation in all cases of lateral renal lithiasis if the contralateral kidney offers no contraindication. Fredet agrees with Heitz Boyer and others that lithiasis should be treated as conservatively as possible. He cites the indications which are accepted by Martin and others. The immediate prognosis of primary lithiasis is better than that of extended nephrotomy; the mortality of the latter is between 8 and 10 percent. However, the remote prognosis of nephrectomy may be clouded by the presence of purulent or urinary fistula or the presence in the other kidney. Of course, the author's recurrence in a later operation.

Secondary nephrectomy develops as a means of curing a persistent infection. One of the secondary hemorrhages is frequent after extended nephrotomy. It is caused also for recurrence in a later operation.

The principal indication for infected lithiasis in a solitary kidney is the only means by which very effective drainage of an infected kidney can be obtained. The only operation possible in bilateral lithiasis when the infection is greatly reduced. Under such conditions, operation of necessity. The results are the same as that of extended nephrotomy. The end result is that the intervention was an operation performed in the presence of normal renal function.

Extended nephrotomy is the operation which exposes the patency of the ureter. The chief complication is secondary infection. The fourth and twentieth cases are The hemorrhage which is frequently necessitates a nephrectomy. Other possible sequelae are pyelonephritis and generalization. 360 cases of infected in

nephrotomy which are collected by the author dated occurred in 61 (17 per cent). No ever in spite of the unfavorable immediate prognosis the remote results are generally satisfactory. Secondary fistulae and recurrence of the lithiasis are no more frequent than after pyelotomy. In some cases however the function of the kidney may be considerably diminished.

Pyelotomy causes much less operative shock than nephrotomy. It is seldom followed by secondary hemorrhage and is responsible for generalization of the infection much less frequently than nephrotomy in which absorption of septic products may occur in the region of the renal incision. On the other hand, Heitz-Boyer had 2 cases of embolism in 22 cases of pyelotomy for infected renal lithiasis. As a rule however the immediate prognosis is much more favorable than that of extended nephrotomy and the remote prognosis is as good as the remote prognosis of the latter operation.

When calculi are present simultaneously in the renal pelvis and the calyces or renal parenchyma the pelvic stones may be extracted through an ordinary pyelotomy incision and the others through small incisions in the renal parenchyma. The partial incisions bleed very little and such bleeding as occurs may always be stopped by sutures. If an infarct results it will be small and will not greatly injure the function of the kidney.

The severity of extended nephrotomy led Heitz-Boyer in 1913 and again in 1932 to use an extended pyelotomy in cases of very large stones situated partly in the kidney pelvis and partly in the kidney in which a simple pyelotomy would not be possible. Marion has also adopted this procedure describing it as a pyelonephrotomy. Instead of resorting to an extended nephrotomy, Heitz-Boyer and Marion prolong the incision of the pyelotomy on the kidney itself in the direction of the stone. Their techniques are described by Fredet with illustrations. Marion uses his procedure for calculi of the renal pelvis which extend far to the kidney in only 12 recti and for coiled shaped calculi which do not penetrate far into the kidney.

Lapin recommends infundibular pyelotomy. This approach is quite sure to avoid vascularity. Since when the kidney cannot be exteriorized it is nearly always possible to incise the lower edge of the pelvis by swinging the lower pole of the kidney up and outwards. The incision may be prolonged on the renal parenchyma and the renal calyx opened an extended infundibular pyelotomy being thus accomplished.

The first requisite for pyelotomy is the possibility of exteriorizing the kidney so that the posterior surface of the renal pelvis may be denuded and incised under the control of vision. Another requirement is an exact knowledge of the number and location of the stones. The size and shape of the stones will not contain an indication of the operation if the extended pyelotomy of Marion and the combined angular incisions of the renal pelvis are used. According to Albarran pyelotomy is contra-indicated by infection sufficient

to require drainage of the renal pelvis but may succeed when the urine is slightly infected. Heitz-Boyer performs pyelotomy in infected renal lithiasis provided the kidney is not reduced to a series of pyonephrotic pockets. The infection may often be weakened by local disinfection before the operation and the lesions and renal pelvis can be disinfected by the introduction of intrapelvic or intracanalicular drains at the time of operation. When the kidney cannot be exteriorized and therefore pyelotomy is impossible the removal even of stones in the renal pelvis requires an extended nephrotomy. In cases of severe infection it is sometimes necessary to open the kidney and drain the multiple pyonephrotic pockets.

While there are undoubtedly complications of infected lithiasis which require an emergency operation in many cases of pyelonephritis and calculus pyonephrosis may be benefited by preoperative catheterization of the diseased ureter and the use of a retention sound.

The treatment during the first few days after operation for infected renal lithiasis should consist in the introduction of an intrapelvic or intracanalicular drain and antiseptic lavage to wash out debris that may have been overlooked and to disinfect the renal cavities. The patient should be watched for recurrence later at a given time. The renal pelvis must be kept aseptic for three months and its condition determined twice a year. Especially to be combated is an enterocolic infection. According to Heitz-Boyer this is usually the basis of infected lithiasis or its recurrence. It requires medical treatment supplemented by vaccination by means of anti-colon bacillus serotherapy and hygienic and dietetic measures.

## BLADDER URETHRA AND PENIS

Coffey R C Radical Treatment of Cancer of the Bladder. *Clinical Medicine* 93 56

The author briefly summarizes his theories regarding the treatment of that type of cancer of the bladder for which no curative has yet been found. He calls attention to the valuable action produced in the intramural portion of the ureter and its practical application in ureteral transplantation. He gives a brief outline of his technique for bilateral transplantation of the ureters by the tube method in which the ureter is made to run immediately under the mucosa for a distance before it opens into the lumen of the bladder. In the last year he has performed bilateral transplantation of the ureters in thirteen cases without any deaths. He advises total cystectomy or destruction of the bladder with large doses of radium after the ureteral transplantations.

C. I. URETHRA FORD O. CROWLEY M.D.

## MISCELLANEOUS

Wolfe A L and Hirsch I S Intravenous Urography. *Medical and Surgical* 93 1

Swick modified selection neutral by substitution of sodium glycyl for the methyl group and decrease

the iodine content. The resulting product uroselectan is non toxic and very soluble in water. It has an iodine content of 42 per cent and is excreted through the kidney in eight hours with no chemical change. Iodism has never been noted following its use. It is of value in demonstrating renal function as well as in urography. When no renal shadows are seen after its injection the kidney is either absent or its function has been largely destroyed. Intravenous urography with uroselectan is possible in conditions in which cystoscopy is contra indicated such as severe hemorrhage, inflammation of the adnena and enlargement of the prostate.

A 40 gm. package of the uroselectan is dissolved in 80 ccm. of heated double distilled water. The solution is then filtered twice, sterilized by heating for twenty minutes over a steam bath, cooled and injected intravenously in two injections separated by an interval of from two to five minutes. The renal pelvis becomes visible five minutes after the injection but visualization of the entire urinary tract requires from fifteen to twenty minutes.

BENJAMIN F. ROLLER, M.D.

#### Kretschmer H. L. Intravenous Urography

*Surg. Gynec. & Obst.* 1930 li 404

#### Hyman A. Intravenous Urography in the Diagnosis of Urological Diseases in Childhood

*S. Gynec. & Obst.* 1930 li 409

In a series of eighty five cases of adults and children of both sexes which are reported by KRETSCHEMER uroselectan was found to be non irritating and nontoxic. A local reaction or pain occurred in only one or two instances and a systemic reaction such as chills and fever in none. Only such transitory symptoms as thirst and a feeling of warmth occasionally associated with flushing of the face and head were noted. In ten infants and children the tolerance for uroselectan was particularly good. Hence it appears that the use of the drug as a diagnostic aid is of great importance prior to cystoscopy in children. One child died twenty one days after a second injection but its death could not be attributed to the uroselectan. The blood chemistry in this case showed marked nitrogen retention.

The congenital anomalies that were easily demonstrated included bifid renal pelvis and horseshoe kidney. In a case of solitary kidney with a stone in the pelvis on one side no shadow appeared on the other side and cystoscopy and chromocystoscopy failed to reveal a left ureter. The diagnosis of solitary kidney was verified at operation. In a case of polycystic kidney the pyelograms were not as clear as those of ascending urography. The best pyelograms and ureterograms were obtained in cases of hydronephrosis and hydro ureter. In cases of unilateral involvement the affected side appeared in marked contrast to the normal side. The shadows of renal and ureteral stones seemed to be intensified by the uroselectan and it was possible by the use of this drug to determine whether a ureteral stone was the cause of obstruction.

Because of the rapid accumulation of the uroselectan in the bladder the bladder should be catheterized when the lower end of the ureter is studied. The rapid disappearance of ureteral dilatation following the passage of stones and the dilatation of strictures can be easily followed with uroselectan. In renal tuberculosis its use gives satisfactory results particularly when ureteral catheterization is impossible. It is a simple means also of investigating the remaining kidney without catheterization of the ureter of that kidney. In malignant tumors of the kidney filling defects appear but when the destruction of the kidney is marked intravenous pyelography gives less clear pyelograms than ascending urography. At times retrograde pyelography affords a check.

The author has used uroselectan also for ascending pyelography diluting the standard solution with equal parts of water. It gives very clear pictures without causing a reaction. It is of great aid in the determination of the origin and location of obscure abdominal pain and in the differentiation of lesions of right upper quadrant of the abdomen and the spleen.

In conclusion the author emphasizes that the older methods of urological study should still be used before surgical procedures are attempted.

HYMAN states that intravenous urography is of even greater value in the cases of children than in the cases of adults. Uroselectan renders the urinary tract visible and yields information as to the function and dynamics of the tract without instrumentation. It may be used at all ages and requires no anesthetic. It is absolutely non toxic.

The renal pelvis, ureters and bladder are outlined and the kidney shadow stands out in relief. Lack of visualization may mean either a non functioning kidney, temporary inhibition of function or absence of the organ. Functional studies are made by determining the amount of uroselectan excreted in the urine. Normally 95 per cent should be excreted within from six to eight hours about three fifths during the first two hours, one quarter during the next hour and the rest in the following four hours. When the kidneys are diseased or damaged the rate of excretion is proportionately decreased. In the presence of stasis uroselectan has been found in the urine six or eight days after its injection. When the kidneys are normal the specific gravity of the urine is greatly increased after the injection often reaching as high as 1.045 within a few hours. When the kidneys are diseased such an increase is not noted.

The technique is simple. A child seven years old is given half the adult dose (which is 40 gm.) and a child two years old one quarter of the adult dose. Compression over the bladder region by an inflated rubber bag for ten minutes prior to and during the time of roentgenography greatly intensifies the pyelogram. However two pyelograms should be made without compression. The first exposure is made fifteen minutes after the injection, the second





The majority of resting stones are found in the pelvis of the kidney but occasionally such stones are discovered in the bladder during examination for some other condition. It is emphasized that the surgeon doing renal surgery should make an examination for abnormalities before deciding on his procedure.

In discussing bladder stones the author calls attention to the danger of air embolism when the bladder is distended with air. Complications of bladder stones include prostatism, stricture of the urethra due to infection and traumatic stricture of the urethra. In some of the cases reported the nuclei of the stones were formed by foreign bodies in the bladder. In several instances stones were found in the prostate. When lithotripsy is done with difficulty drainage of the bladder is necessary.

Lithotripsy should never be attempted without a preliminary cystoscopic examination.

In the cases reviewed the majority of the stones which were passed by the patient without aid came from the right kidney. A greater number of stones were present in the right kidney than in the left. The impacted stones were found most commonly in the right ureter. Vesical calculi were found in forty males and three females.

The author emphasizes the very unfavorable prognosis in cases of bilateral renal calculi. In the majority of the cases of this type there is marked damage to both kidneys. Stones in the parenchyma of the kidney are extremely rare. Two cases of renal calculus reviewed were probably due to ascending inflammation from the bladder or pelvic tissues.

J LMER HESS M D

# SURGERY OF THE BONES, JOINTS, MUSCLES TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

Geschickter C F and Copeland M M Tumors of the Giant Cell Group A Pathological Entity 1853 1854

Geschickter and Copeland believe that on the basis of their relationship to the resorption of cartilaginous bone the former clinical entities bone cyst giant cell tumor of the long bones and skull epulis of the alveolar border and giant cell tumors of the xanthoma group found in the tendon sheaths are pathologically related. The solitary bone cyst a form of osteitis fibrosa is an arrested giant cell tumor. The age curves of the bone cyst and the giant cell tumor show that as the healing power of the bone cells declines with the advance in the age of the patient bone cysts decrease and giant cell tumors increase in frequency. The pathological process involved in these tumors is associated with the formation of new bone from cartilage. It is believed that the giant cell tumor preserves its embryonic bone destroying functions and is fundamentally related to the proliferation of osteoclasts in bone newly formed from cartilage. Most giant cell tumors of the skull have been traced to association with cartilaginous centers of ossification. The epulis is related to the process of resorption of the temporary bony structure of the deciduous teeth. Giant cell tumors of the tendon sheaths erroneously classed as xanthomata are in reality tumors of the sesamoid bones.

Trauma is related to the bone cysts and the giant cell tumors not as an indefinite etiological factor but as an initial event causing disruption of the cortical blood supply which results in an imbalance between osteoclastic proliferation in the medulla and reactive compact bone in the cortex. The age of the patient the site of the injury the rate and extent of cartilaginous ossification at the end of the bone and the nature of the blood supply in the affected region are predominant factors in the pathology of these tumors.

Factors in giant cell proliferation are

1. A normal histogenic proliferation of giant cells which occurs only in calcified cartilage or the temporary bone of the roots of deciduous teeth.

2. Injury and necrosis of an area of cortical bone overlying an actively ossifying epiphyseal or metaphyseal region.

3. A response on the part of giant cells and capillaries in cancellous bone to the need for collateral circulation.

4. Disturbances in calcium and phosphorus metabolism inhibiting normal growth and defensive reaction of cortical bone. ELIZABETH CRANSON

Massart R. Joint Malformations of Obstetrical Origin (L. M. L. R. M. T. L. A. D. G. Obstet. J. B. L. T. L. M. S. D. C. L. G. D. Pa. 93 394

Attention is called to certain malformations of the shoulder and hip due to obstetrical trauma which are often believed to be congenital. The author has found several fractures of the clavicle in children which were mistaken for paralysis of the arm. Such injuries occur in delivery accomplished under difficulties often in rural districts by practitioners or midwives unaccustomed to manage dystocia. The author reviews the cases of six patients with a shoulder injury and one patient with a hip injury due to obstetrical trauma. All of the patients were followed for ten years.

The injuries at the shoulder which have been called subluxations are often accompanied by lesions of the brachial plexus caused by stretching. Malformation may occur without paralysis and paralysis without malformation. The infant injured shoulder is very tender to touch and manipulation and is often held immobile in inward rotation which brings the epicondyle forward causes a marked deltopectoral furrow and leads to the diagnosis of paralysis of the arm. In many such cases there is only a separation of the epiphysis of the upper end of the humerus and the arm should be immobilized in external rotation. If the arm is left in malposition on the separated epiphysis may grow on at an angle of 90 degrees with the arm in marked internal rotation.

Primary X-ray examination of the newborn usually fails to give information with regard to joint injuries on account of the easy penetration of the epiphyseal cartilaginous area by the X-rays but a series of roentgenograms made over a period of several years will eventually aid in the diagnosis. When lesions of the shoulder and hip due to obstetrical trauma are unrecognized they interfere with the normal development of the joints.

KELLOGG S. ED. M.D.

St. Kartal Chondromatosis of the Joint Capsule S. G. Gye & Obst. 930 199

Chondromatosis of joint capsules was first described in 190 by Reichel. There are two theories as to the cause—the theory accepted by Lever which ascribes the condition to tumor growth and the theory accepted by Lotsch and Beckman. I assume which ascribes it to chronic irritation. However the etiology is still doubtful as the tissue has never been studied microscopically. Because of the exuberance of arthritic formation of cartilage in the capsule Kappi regards the condition as a neoplastic change. The author states that there are

graded transitions between osteochondritis dissecans on the one hand and arthritis deformans on the other and also between the latter and chondromatosis. He concludes that chondromatosis of joint capsules is a disease entity.

The clinical diagnosis is difficult because the symptoms may be obscured by those of some other chronic non-inflammatory joint disease or because the chondromatosis may produce no characteristic symptoms. In a fully developed case the roentgen findings must be differentiated from those of osteochondritis in which no cartilage foci are found in the joint capsule; those of arthritis deformans in which cartilage exuberance arises in the synovial villi of the joint and those of calcareous bursitis, hemophilic joints and myositis ossificans.

The author reports eleven cases of chondromatosis of the joint capsule. The patients continued to do heavy work under conservative treatment or with no treatment at all. In most cases the main object of treatment should be to prevent the occurrence of secondary arthritic changes. Operation is indicated only when the chondromatosis causes mechanical interference with joint function.

RUDOLPH S. REICH, M.D.

#### Key, J. A. Traumatic Arthritis and the Mechanical Factors in Hypertrophic Arthritis. *J. Lab. & Clin. Med.* 1930, vi, 2245.

Following a discussion of the various theories that have been advanced and a review of numerous investigations that have been carried out by various investigators with regard to the cause of hypertrophic arthritis, the author reports studies he has made on rabbits to test the mechanical theory of the origin of the condition. He states that he has produced the pathological picture of hypertrophic arthritis in the knee joints of rabbits by resecting a small rectangle of cartilage from the patellar surface of the femur. In more recent experiments on rabbits he attempted to produce it by the manipulative production of a knock knee. Of the animals of the latter group which grew to adult life, all showed definite chronic arthritis of the hypertrophic type with osteophytes around the cartilage margin, more or less hypertrophy of the involved bones and hyperplasia of the synovial membrane. However, the value of the experiments was lessened by the fact that all of the knees showed evidence of definite articular damage occurring at the time of the manipulation. The lower end of the femur had been fractured, the femoral epiphysis had slipped, or the crucial ligaments had been ruptured. What was produced was traumatic arthritis from disorganization of the joint or cartilage and bone injury and not chronic arthritis from faulty mechanics in weight bearing.

With regard to the occurrence of chronic arthritis in man as the result of trauma, Key cites cases in which it developed in a metatarsophalangeal joint after a violent kick in the knee joint as the result of strain due to genu valgum and following an injury to the internal semilunar cartilage and anterior cru-

cial ligament in joints which had been fractured and imperfectly reduced and in the first metatarsophalangeal joint from the pressure of short shoes.

In conclusion, Key states that he has not attempted in this report to prove the mechanical functional theory of the disease. He has intended merely to emphasize that the pathological picture of hypertrophic arthritis may be produced by mechanical insults to a joint, that in many cases the symptoms can be relieved by rest and the correction of static defects and that the basic cause of the disease is still being sought. FREDERICK A. JOSTES, M.D.

#### King, E. J. S. On Some Aspects of the Pathology of Hypertrophic Charcot's Joints. *B. J. Surg.* 1930, xiii, 113.

Hypertrophic Charcot's disease is associated with nervous lesions of many types such as tabes, general paralysis of the insane, syringomyelia, paraplegia, myelitis and peripheral nerve lesions.

In this grotesque form of osteoarthritis the exaggeration of the processes concerned is due to frequent traumatism permitted by bone and joint anesthesia. Small pieces of dead bone are evident in the articular ends of the bones. There are also areas of great cellular activity with fibroblastic proliferation and a large development of new bone and cartilaginous tissue suggesting a neoplastic rather than an inflammatory proliferation.

The processes involved are anaplasia of the connective tissue cells to a primitive type with subsequent differentiation in various directions. The stimulus for the anaplasia may be the products of dissolution of the small pieces of necrotic bone.

WALTER P. BLOUNT, M.D.

#### Morton, C. B. Osteogenic Sarcoma of the Humerus. A Review of the Literature and a Case Report. *Id.* 1930, vi, 444.

Morton reports a case of telangiectatic sarcoma of the humerus in a mulatto boy seventeen years of age. The tumor grew rapidly, only four months elapsing between the onset of the symptoms and death. It presented the clinical characteristics of a low grade osteomyelitis with a relatively acute onset, pain, tenderness, swelling, local heat, fluctuation, fever and leucocytosis. The roentgen diagnosis was osteogenic sarcoma, but chronic low grade osteomyelitis could not be entirely excluded.

Osteogenic sarcoma of the telangiectatic variety is very vascular. It may even pulsate. It develops very rapidly, destroying the shaft of the bone, causing pathological fractures and soon forming metastases. It consists of a series of communicating blood sinuses lined by hyperchromatic spindle and polyhedral cells and supported by partly ossified tumor tissue. The periosteum is soon perforated by the neoplasm, then invading the muscle or a joint.

Kolodny attributes the development of osteogenic sarcoma to an unknown stimulus which breaks the growth restraint. Trauma has frequently been suggested as such a stimulus.

# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

Gescl ickt C F and Copeland M M Tumo s  
of the Giant Cell Group A Pathological  
Entity 1 of S g 193 x 145

Geschickter and Copeland believe that on the basis of their relationship to the resorption of cartilaginous bone the former clinical entities bone cyst giant cell tumor of the long bones and skull epulis of the alveolar border and giant cell tumors of the xanthoma group found in the tendon sheaths are pathologically related. The solitary bone cyst a form of osteitis fibrosa is an arrested giant cell tumor. The age curves of the bone cyst and the giant cell tumor show that as the healing power of the bone cells declines with the advance in the age of the patient bone cysts decrease and giant cell tumors increase in frequency. The pathological process involved in these tumors is associated with the formation of new bone from cartilage. It is believed that the giant cell tumor preserves its embryonic bone destroying functions and is fundamentally related to the proliferation of osteoclasts in bone newly formed from cartilage. Most giant cell tumors of the skull have been traced to association with cartilaginous centers of ossification. The epulis is related to the process of resorption of the temporary bony structure of the deciduous teeth. Giant cell tumors of the tendon sheaths erroneously classed as xanthomata are in reality tumors of the sesamoid bones.

Trauma is related to the bone cysts and the giant cell tumors not as an indefinite etiological factor but as an initial event causing disruption of the cortical blood supply which results in an imbalance between osteoclastic proliferation in the medulla and reactive compact bone in the cortex. The age of the patient the site of the injury the rate and extent of cartilaginous ossification at the end of the bone and the nature of the blood supply in the affected region are predominant factors in the pathology of these tumors.

### Factors in giant cell proliferation are

1 A normal histogenic proliferation of giant cells which occurs only in calcified cartilage or the temporary bone of the roots of deciduous teeth

2 Injury and necrosis of an area of cortical bone overlying an actively ossifying epiphyseal or metaphyseal region

3 A response on the part of giant cells and capillaries in cancellous bone to the need for collateral circulation

4 Disturbances in calcium and phosphorus metabolism inhibiting normal growth and defensive reaction of cortical bone

ELLI ABETH CRANSTON

Massart R Joint Malformations of Obstet  
Origin (Les malformations de l'origine  
obstétricale) B R t t S c d l g d  
Pa 93 x 394

Attention is called to certain malformations of the shoulder and hip due to obstetrical trauma which are often believed to be congenital. The author has found several fractures of the clavicle in children which were mistaken for paralysis of the arm. Such injuries occur in delivery accomplished under difficulties often in rural districts by practitioners or midwives unaccustomed to managing dystocia. The author reviews the cases of six patients with a shoulder injury and one patient with a hip injury due to obscure obstetrical trauma. All of the patients were followed for ten years.

The injuries at the shoulder which have been called subluxations are often accompanied by lesions of the brachial plexus caused by stretching. Malformation may occur without paralysis and paralysis without malformation. The infant's injured shoulder is very tender to touch and manipulation and is often held immobile in inward rotation which brings the epicondyle forward causes a marked deltopectoral furrow and leads to the diagnosis of paralysis of the arm. In many such cases there is only a separation of the epiphysis of the upper end of the humerus and the arm should be immobilized in external rotation. If the arm is left in malposition the separated epiphysis may grow on at an angle of 90 degrees with the arm in marked internal rotation.

Primary X-ray examination of the newborn usually fails to give information with regard to joint injuries on account of the easy penetration of the epiphyseal cartilaginous area by the X-rays but a series of roentgenograms made over a period of several years will eventually aid in the diagnosis. When lesions of the shoulder and hip due to obstetrical trauma are unrecognized they interfere with the normal development of these joints.

KEL CG SE E MD

Stuart L Chondromatosis of the Joint Capsule  
S g Gy e & Obst 193 1 99

Chondromatosis of joint capsule was first described in 1900 by Reichel. There are two theories as to the cause—the theory accepted by Leherich which ascribes the condition to tumor growth and the theory accepted by Lotsch and Beckmann. Larsson which ascribes it to chronic irritation. However the etiology is still doubtful as the tissue has never been studied microscopically. Because of the exuberance of articular formation of cartilage in the capsule Kappis regards the condition as a neoplastic change. The author states that there is

anemic necrosis with a hæmorrhagic bordering zone formed by the anastomosing vessels. Moreover the focus would occur on only one side of the semilunar bone. The author's investigations have shown that the necrosis is situated centrally and more in the proximal portion. This typical location and the absence of signs of injury in the ligaments disprove the theory of ligament rupture. Moreover no sign of vascular disturbances such as thrombosis or embolism were found. The author's studies of the vascular supply of the semilunar bone also indicate that the necrosis is not due to ligament tears or embolism. The semilunar bone is nourished similarly from both periosteal sides by several vessels. Otherwise it is completely cut off from the circulation by its four joint surfaces as well as by the layer of periosteum over a layer of fibrocartilage which does not permit the passage of large blood vessels. Therefore the inner side of the fibrocartilaginous covering of the bone is also supplied by recurrent branches from the interior of the semilunar bone.

From these observations the author concludes that the cause of the necrosis is always a compression fracture. He has found fractures in all cases. That these fractures were primary was proved by the readily recognizable hæmorrhages which were always limited to the site of the fracture. The crummy necrosis or Arthausen's bone meal is the remains of hæmorrhage. The lines of fracture have a typical direction. Apparently the compression of the semilunar bone between the radius and the capitate bone results in a compression fracture between the proximal and distal joint surfaces and at the same time a tearing fracture between the lateral surfaces. The cartilaginous covering being not compressible gives way at the sides. The bone nucleus of the semilunar bone is squeezed out of its covering of cartilage. The extent of the fracture varies according to the force with which the semilunar bone is compressed between the capitate bone and the radius. When the trauma is slight there is an isolated fracture below the volar joint surface. More severe trauma causes a fracture below the distal joint cartilage and separation of the semilunar bone into a dorsal and a volar fragment with preservation of the cartilage or its partial or complete rupture. Extensive necrosis of the entire semilunar bone is due to tearing of the afferent vessels by the line of fracture under the periosteum. In less severe cases a necrotic area develops in indirect contiguity to the fracture and a region extending more deeply. This marginal necrosis is due apparently to an increase in the internal pressure from congestion and the fracture hæmatoma.

Therefore necrosis of the semilunar bone is caused by a primary fracture and the extent of the necrosis is dependent on the form of the fracture lines. Subsequently a giant cell and spindle cell granulation tissue grows from both periosteum covered sides into the necrotic bone and absorbs it. Only late is there a new bone formation in this connective tissue. For a considerable period there remains a

broad zone of connective tissue which is manifested roentgenologically as a cystic rarefaction on the dorsal and volar aspects. Cysts arising from the remains of fractures and hæmatomata and from dilated vessels are occasionally demonstrated but not roentgenographically. In older cases four zones may be distinguished: (1) the necrotic central part; (2) the reparative zone; (3) external to the reparative zone an area of old bone with an inner area of new bone formation; and (4) external to this a layer of new bone.

During the course of the reparative processes there is a gradual collapse of the semilunar bone. This is due to the loss of firmness in the necrotic bone trabeculae and in part to the slight resistance to pressure of the newly formed connective tissue parts. The collapse of the bone is favored by movements of the hand which cause repeated congestion. The necrotic area shows little tendency to heal. It persists over a period of years. This is explained by the great extent of the necrosis and the exposed position of the bone. The author's study of the lines of force in the metacarpus shows that in a fall the semilunar bone is affected most being caught between the capitate and the radius. Similar change occurs in the navicular bone although more rarely since the force is concentrated on the semilunar bone. The arthritis deformans associated with necrosis of the semilunar bone occurs only in older cases and is secondary to nutritional disturbances.

ERICH HEMPEL (Z)

**Wagner L. C. Intra Articular Endothelial Tumors Arising from the Synovial Membrane. A. Surg. 1930 xcu 4 1**

Wagner reports two intra articular endothelial tumors arising from the synovial membrane one developing in the anterior space of the knee joint of a man thirty five years old and the other in the anterior space of the ankle joint of a girl fifteen years old. On exposure the tumor adapts itself to the shape of the joint space it occupies.

The neoplasm is definitely capsular its only attachment being to the synovial membrane. It has a yellowish brown tinge and is very cellular and resistant to the touch. Histological examination shows elongated blunt cells sometimes fusiform lying close together. The nuclei are round or oval. In certain zones the fibrous tissue exceeds the cellular elements.

The clinical diagnosis is difficult as there is no definite disability. Roentgenograms show a definite circumscribed shadow in the soft tissue structures.

Amputation is usually necessary to effect a cure.

RUDOLPH S. REICH, M.D.

**Camurati M. Congenital Pseudarthrosis of the Tibia (Le pseudoartrosi congenite della tibia). Chir. d. rga. di mor. m. nlo 1930 xv 1**

The author reviews the literature on congenital pseudarthrosis of the tibia and reports 27 cases from the Rizzoli Orthopedic Institute.

The condition is a localized osseous dystrophy occurring in a limb which is relatively well developed in its important parts but otherwise shows more or less atrophy. It may or may not be associated with a similar lesion of the fibula.

Only 145 cases have been recorded. Fifty seven and six tenths per cent of the patients were males. In 95 per cent the condition was unilateral. In the author's opinion it is due to arrest of development and heredity plays only a minor rôle in its pathogenesis.

The most constant and sometimes the only change is a deviation of the tibia from its normal axis. This may form an acute or obtuse angle with a superior or inferior apex. The convexity arises but is usually anterior. Atrophy is constantly present in the lower fragment but may occur also in the upper fragment. The leg may be shortened as much as 12 cm. Compensatory lengthening of the femur occurs occasionally. Sometimes there is a scar in the skin at the apex of the curvature. The foot is at first in normal position but may assume the equinus or talipes position secondarily to compensate for the curvature of the leg. Vasomotor disturbances are rare.

Three clinical types of pseudarthrosis of the tibia may be distinguished—the latent, the fixed and the mobile. In the latent type there is no interruption in the bony skeleton. The curvature is usually anterior and inward. Changes are present at the junction of the lower and middle thirds of the tibia and often in the fibula. The diaphysis shows atrophy and shortening. Frequently there is an annular circular thickening at the point of maximum curvature, the medullary canal being partially or entirely obliterated.

In the fixed or closed pseudarthrosis dense connective tissue separates the broken ends of the tibia but the fibula is intact. The direction of the curvature is the same as in the latent type.

In mobile pseudarthrosis both bones are fractured. The curvature usually forms an acute angle. The end of the fragments which are pointed or hook-shaped may overlap and atrophy is usually present.

In the fixed type walking is possible but in the loose type it is impossible unless a splint is used.

Three types of the condition are identified. Also on roentgen examination: (1) a type with simple curvature in which there is abnormal diffusion of the cortical trabeculations due to the flexion and torsion of the tibia; (2) pseudarthrosis without great loss of bone in which the cortical thickening is limited to the superior tibial fragment and the bone surrounding the fracture; and (3) pseudarthrosis with great loss of bone in which cortical thickening is limited to the proximal fracture surface or may be completely absent or there may be cortical atrophy.

Macroscopically 2 main types are distinguished: (1) that with simple curvature without pseudarthrosis and (2) that with pseudarthrosis. The first type is characterized by deviation of the axis, atrophy

diminution in the length and diameter of the tibial and fibular diaphyses and absence of fractures and callus. In the second type there is marked atrophy in the distal fragment. The fractured end of the upper fragment may be rounded, pointed or concave or form a glenoid cavity receiving the lower fragment. Overlapping is not uncommon. The osseous tissue adjoining the pseudarthrosis is friable, especially in the distal fragment. The fragments are usually united by fibrous or fibrocartilaginous tissue. The soft tissues show atrophy without degenerative changes of the muscles which insert into the tibia and fibula and the sural triceps is retracted and sometimes hypertrophic.

The author reports the histological findings in tissue removed from the region of the pseudarthrosis in 1 case. Proximally there was normal bone. Toward the area of the pseudarthrosis the bony lamellae became denser and rich in pyknotic nuclei, assuming an osteoid appearance. No osteoblasts were present. The bone marrow showed an increase in the nuclei and fibrous changes. The pseudarthrosis itself consisted of dense connective tissue which was rich in cells showing little mitosis but poorly vascularized. In places bony trabeculae traversed this connective tissue from the proximal to the distal fragment. The periosteum passed over the periphery normally. The author concludes that these changes do not constitute a definite pathological entity.

At best the prognosis should be guarded. The condition can be cured usually with difficulty but there is no assurance that it will not recur.

As the pseudarthrosis tends to get worse early treatment is advisable. Non-operative measures include immobilization, the local injection of irritants and the induction of hyperæmia. Surgery offers the best chance for success but should not be attempted before the patient is six years old. The operative measures include osteotomy in the latent cases and resection of the pseudarthrosis followed by suture of the bony fragments or bone transplantation. The author describes several types of bone transplantation. The post-operative immobilization must be continued for years after clinical and roentgenological evidence of apparent cure has been obtained.

Of 97 surgically treated cases reviewed by the author a cure was obtained in 3, improvement in 16 and no change in 51. Twenty-one of the 30 cures followed bone transplantation.

A. LOUIS ROY, M.D.

Poulet F. Tuberculosis of the Calcaneum in Children. (Lancet, 1930, 1, 131.)

Tuberculosis of the calcaneum may develop early in childhood when the center of ossification of the bone is active or later when the posterior epiphyseal center becomes active. The author has treated twenty-four children with this condition. Eight were under six years of age. Of the sixteen who were

older the majority were between nine and eleven years. In most of the cases reported by Chicandard the subastragaloïd joint was affected but this was not true in the author's cases. In some of Pouzet's cases there was slight limitation of movement.

The external surface of the calcaneum was exposed by an Ollier L shaped incision and a thorough curettage performed except in one old case that of a child fifteen years of age in which a subperiosteal resection was performed. The curettage left only a shell of bone. Pouzet believes that such a thorough curettage is better than a limited curettage as the latter may be followed by recurrence necessitating further operation. The bone is reconstructed very readily in the child when the cartilage shell remains intact. In eight of Pouzet's cases there were circumscribed caseous foci with a zone of peripheral condensation. In sixteen the lesions were more diffuse. Pouzet attributes the predominance of diffuse lesions to the fact that his patients were operated upon early. Chicandard says that the condensing osteitis surrounding the caseous lesions is a calcification which begins from eighteen to twenty four months after the beginning of the disease but the author has seen it much earlier.

In three of Pouzet's cases death resulted from severe general tuberculosis. In two cases the lesions progressed and necessitated tarsectomy and the patient died later of cachexia. In three cases the curettage was not extensive enough and was followed by recurrence. Sixteen of the patients recovered with absolutely normal or very good function and without talipes cavus or any of the other anatomical abnormalities mentioned by Chicandard.

AUDREY G MORGAN M D

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS ETC

Dorrance G M Osteoperiosteal Bone Grafts  
14 N. S. J. 1930 XLII 161

Dorrance reports a case in which an osteoperiosteal graft from the tibia was used to bridge the tibia and femur in extra articular arthrodesis of the knee. The usual arthrodesis was contra indicated because the leg was already shortened and there was danger of lighting up an old arthritis. The result was good.

Also reported are experiments on dogs in which the lower jaw was bridged by osteoperiosteal grafts.

Dorrance emphasizes that a good supply of bone must be included with the periosteum in these operations and that as much care must be taken in preparing the bed for the graft and fixing the graft firmly in place as in the use of the full thickness graft. Osteoperiosteal grafts require a longer time to become solid than full thickness grafts.

In the discussion of this report WAGOVER said that failures are sometimes due to areas in the graft where bone chips are not adherent to the periosteum.

IVY reported that for the bridging of small defects in the jaw he prefers the osteoperiosteal graft but

for the correction of large defects he uses the full thickness graft  
CHESTER C GUY M D

Hench P S Henderson M S Rowntree L G  
and Adson A W The Treatment of Chronic  
Infectious Arthritis by Sympathetic Ganglionectomy and Trunk Resection J Lab & Clin Med 1930 XI 1247

Aside from removal of foci of infection the major and relatively more successful forms of treatment for chronic infectious arthritis are all directed toward increasing the circulation of the joint in increasing the temperature and thus the metabolism of the joint and increasing the oxidation of articular tissue.

The treatment of certain cases of chronic arthritis by resection of sympathetic ganglia and trunks was instituted by Rowntree and Adson in the hope that it would produce an optimal degree of articular circulation in certain joints at least.

Any superiority in results that may come from resection of sympathetic ganglia and trunks in certain well selected cases of chronic infectious arthritis may be due solely to the fact that by this procedure the desired favorable state is maintained over a protracted period possibly permanently instead of intermittently for only a few minutes or hours at a time.

The general principle of resection of sympathetic ganglia and trunks is to cut out and remove the sympathetic ganglia and their rami that contain vasoconstrictor fibers to the vessels of the extremities thereby increasing the circulation and temperature of the joints of the extremities and probably increasing tissue oxidation within them.

Operation is indicated probably in only a small percentage of cases of chronic infectious arthritis. Satisfactory results have been obtained frequently in cases in which there have been changes in the soft tissues or the joints of the hands and feet. In some cases no benefit has been obtained.

At the Mayo Clinic the selection of cases for the operation described is based at the present time on the following six major requirements:

1 The arthritis should be chiefly periarticular or synovial (capsular) with little if any bony alteration (destruction or hypertrophy) except atrophy.

2 The patient preferably should demonstrate some of the alterations in vasomotor tonus shown objectively by cold clammy sweating hands and feet and a reduction in the blood pressure (approximately below from 110 to 115 systolic) and subjectively by intermittent numbness and tingling.

3 Vasomotor alterations must be capable of correction or over correction by release of the control of the sympathetic apparatus. The possibility of such correction can be demonstrated by determining the vasomotor index that is by obtaining a definitely higher cutaneous temperature than mouth temperature after typhoid vaccine has been given intravenously. The temperature of the joints of the extremities may or may not be identical with that



of the skin over them but the temperature of the latter serves as an index of elevation of temperature from vasomotor dilatation

4 The patient should preferably be less than thirty five years of age and not more than forty five years

5 The arthritis should be progressive and the main disability should be confined to the extremities particularly the hands and feet If the arthritis is not progressive continuation of the therapeutic program already established may accomplish satisfactory results If it does not and if the degree of disability is great operation may be permissible in carefully chosen cases

6 A reasonable period probably at least from six to twelve months of intensive not haphazard treatment by the more established less radical procedures should be allowed before resection of sympathetic ganglia and trunks should be considered However rapid progress of the condition or the stress of economic circumstances may necessitate consideration of earlier surgical measures

The authors conclude that resection of sympathetic ganglia and trunks is not applicable to all forms of arthritis or of value in all stages and degrees of chronic infectious arthritis At the present time it is their impression that it is of definite benefit in certain carefully selected cases when all other reasonable measures have failed Used properly and not delayed too long it may by maintaining an increase in the temperature circulation and perhaps the metabolism of the more distal joints of the extremities induce a stage of compensation in the arthritic disability that cannot be produced otherwise The final opinion regarding the proper selection of cases for the operation and the value of the procedure in properly selected cases cannot yet be expressed

Lange F Tendon Transplantation (Sherrill and Galt) J. Bone Joint Surg. 1931, 13, 107

The author reports thirty eight cases of tendon transplantation on dating back twenty four years In a case of complete paralysis of the triceps muscle the muscle was replaced by a 30 cm silk tendon extending from the latissimus dorsi and the teres major to the olecranon In a case of club foot considerable improvement was obtained from the attachment of silk tendons to the tibialis anterior and gastrocnemius In a case of paralytic club foot the paralysis of the tibialis anterior and posterior the peroneus longus was attached to the inner surface of the calcaneus and silk tendons were attached from the extensor digitorum longus to the navicular bone This procedure is suggested also for flat foot of the usual severity

For talipes calcaneus transplantation of the peronei tibialis posterior or flexor digitorum and flexor hallucis to the tendon of Achilles is indicated Quadriceps paralysis and quadriceps paralysis must be carefully differentiated In paresis the attachment

of a silk tendon to the sartorius and transplantation of a muscle (the biceps) may render extension possible In complete paralysis sufficient material must be used for substitution The author reports 10 cases one of which was operated upon twelve years ago and the other twenty four years ago Seven flail knees may be stabilized by silk lateral bands In one of the cases reviewed an internal silk band of the size of a finger gave complete function

A difficult procedure is the substitution of the hip muscles A substitute for the flexor muscles may be obtained by freeing the upper end from the vastus externus prolonging it with a silk tendon and suturing it to the anterior iliac spine Up to 1921 no substitute had been devised for the paralyzed gluteus maximus Today a substitute is provided by extending a bridged silk tendon from the sacrospinous to the trochanter The gluteus medius and minimus may be replaced by a plastic operation in which the latissimus dorsi from the other side is brought diagonally under the skin of the spinal column to the trochanter major Complete substitution for the paralyzed gluteus is impossible but the limping can be decreased and walking made more sure

E. GEL (Z)

Marshall R. Tuberculosis of the Shoulder and Arthrodesis (Holt and Lippert) J. Bone Joint Surg. 1931, 13, 12

In tuberculosis of the shoulder resection by no means always gives the mobility it is supposed to give Ankylosis of the shoulder is not a very serious inconvenience as it is admirably compensated by the great degree of mobility of the scapula There is little limitation of movement except in elevation and outward rotation of the arm

The author describes his technique for arthrodesis of the shoulder and shows the steps of the operation by illustrations He uses Neudorfer's epaulette incision above the joint a transacromioclavicular incision which is begun at the posterior border of the scapula where the plane of the glenoid cavity is prolonged would meet the acromion and is continued forward to the coracoid process It involves incision of the acromion process and the external end of the clavicle Some surgeons object to it because they think section of the acromion process and the clavicle is serious but the author finds that it simplifies closure of the joint The incision advocated is of advantage also because it is not followed by the oozing of blood and serum that occurs after an incision made beneath the joint there are no vessels to ligate and the bovie hemorrhage is controlled by tamponing The capsule is opened if it has not already been destroyed by the tuberculosis and the joint is opened The diseased tissue and fungoidities are removed and as much as necessary of the bone of the glenoid cavity and humerus is excised This can be accomplished without disturbing the muscle insertions The cavities left by the excision are filled with osteoperiosteal grafts which form a bridge between the two bones The grafts are taken from

the tibia and used at once. The capsule is then closed the muscle layers are sutured and the acromion process and clavicle are sutured in place.

While the patient is still under the anesthetic the shoulder is immobilized in abduction of 30 degrees and internal rotation of 60 degrees. The immobilization is maintained for two months during which period the patient is given general and recalcifying treatment. At the end of that time the joint is solid. A roentgenogram is then taken. Thereafter the forearm is allowed to be free but a small plaster spica of the shoulder remains in place for three months.

Two cases are reported with roentgenograms  
AUDREY G. MORGAN, M.D.

**Dandy W. E. An Operation for the Treatment of Spasmodic Torticollis** *Arch Surg* 1930 **xx** 101

In the treatment of spasmodic torticollis Keen in 1891 divided the posterior divisions of the first second and third cervical nerves on one side at their points of emergence from the vertebrae. Finney and Hughson in 1925 were the first to report a bilateral operation for the condition. The operation they described was a bilateral Keen's operation plus division of both spinal accessory nerves. Its failure to effect a cure in every case was probably due to individual variations in the extent of involvement of the cervical muscles.

The cause and pathogenesis of spasmodic torticollis are unknown and none of the numerous theoretical explanations of the condition is satisfactory. There is no greater evidence of a psychogenic background than in any other condition treated surgically.

In the Finney-Hughson operation the anterior divisions of the cervical nerves are inaccessible and only the posterior divisions are attacked. Accordingly there is incomplete interference with the nerve supply of the rectus capitis lateralis, rectus capitis anterior, longus capitis, sternomastoid, trapezius and levator anguli scapulae muscles. Dandy believes that the principal difference between his operation and that of Finney and Hughson lies in the preservation by their method of function in the more powerful muscles, namely the sternomastoid, trapezius and levator anguli scapulae.

In Dandy's operation the sensory and motor roots of the first second and third cervical nerves are resected after removal of the laminae of the upper three vertebrae. Until recently the spinal accessory nerves were divided alongside the medulla and the higher medullary branches were divided independently. Recently however this part of the operation has been abandoned because the most anterior filaments are not always accessible. The spinal accessory nerves are now divided intraspinally at the level of the foramen magnum only to obtain better exposure of the first cervical motor branch. When the operation is concluded the patient is turned on his back, the spinal accessory nerves are

exposed and divided through two small incisions in the neck and the proximal ends of the nerves are reversed and sutured in this position to prevent regeneration.

Since this article was submitted for publication Dandy has sectioned the upper three motor cervical nerves on both sides without sacrificing any sensory fibers. He experienced no difficulty in avoiding the sensory roots.

The limits of intraspinal section are reached by the operation described as the fourth cervical nerves give rise to the phrenic nerves and the remaining cervical nerves give rise to the brachial plexus. In cases with some degree of contraction after the operation it is possible to remove the nerve supply of the small group of offending muscles by a minor peripheral operation.

Eight cases are reported. Five of the patients were practically cured and two were greatly benefited. One died from pneumonia developing ten days after the operation. There was no operative mortality.

In only one instance was there entire freedom from minor jerking or drawing of the head immediately after the operation. However the movements were mild. The patient should be informed before the treatment that the cure will not be instantaneous. After the operation he should spend from three to six months in rest and graduated exercises to strengthen the muscles of the neck.

In two of the author's cases there was dysphagia of minor degree. Deglutition was always possible but required increased effort. The dysphagia was probably the result of the loss of the nerve supply to a muscle of deglutition. Its occurrence in two cases and absence in five is explained by variations in the nerve supply of the infrahyoid groups of muscles.

E. S. PLATT, M.D.

**Mathieu P. Repair Surgery of the Hip** (*Chirurgie de la hanche*) *Bull. et Mém.* 1930 **x** 975, 1004

By means of operation it is possible to (1) restore the neck of the femur following its fracture, (2) stabilize the head of the femur in congenital luxation, (3) restore mobility to the ankylosed hip (arthroplasty), (4) reconstruct a stable mobile and painless joint in cases of destructive lesions of the hip (reconstructive operations), and (5) ankylose a painful or unstable hip (arthrodesis).

Pseudarthrosis of the neck of the femur may be treated by osteosynthesis with the use of pegs of living bone or screws of dead bone with or without arthrotomy or in cases of extensive osseous destruction of the neck and head by a reconstructive operation.

In unmanageable congenital subluxations and luxations of the hip stabilization by the osteoplastic formation of a buttress for the head after its reduction into the acetabulum gives remarkably good results. In irreducible anterior luxations the formation of a buttress often assures stability and freedom from

pain. In cases of irreducible posterior luxation the stabilizing action of a buttress is less constant.

Ankylosis of the hip is amenable to arthroplasty. In cases of bilateral ankylosis this operation is essential on one side at least but in cases of unilateral ankylosis it is optional.

Painful hip acquired instability of the hip and pseudoluxations are amenable to arthrodesis or a reconstructive operation. Extra articular arthrodesis seems to be the treatment of choice for certain sequelæ of coxalgia.

Of fifteen cases of coxalgia in which the author performed extra articular arthrodesis of the hip the roentgenograms showed complete osseous ankylosis in eight. In four the ankylosis was less certainly osseous as there was some flexibility of the hip. In three cases the operation was too recent for judgment of the end result but the immediate result was very good. In one case the osseous bridge seemed to be fractured or partially absorbed. P. C.

Vergo, Coalgia Extra Articular Arthrodesis of the Hip. (C. B. J. 1931, 1: 736)

The author reports the case of a man twenty five years of age who entered the hospital July 13, 1929 because of coxalgia of the right side. The symptoms had begun several months previously but did not become definite until March, 1929. They consisted of fatigue on walking, lameness and pain which prevented the patient from doing his work as a day laborer. After two and a half months his general condition as poor his temperature ranged from 37 to 38.5 degrees C. and the pains in the hip were continuous.

The lower limb was in adduction and external rotation on the thigh was in slight flexion on the pelvis and there was marked lumbar lordosis. All attempts at mobilization of the joint were futile because of stiffness of the joint and contraction of the muscles. Physical examination revealed muscular atrophy of the thigh, glandular puffiness in Scarpa's triangle and pain on pressure on the neck of the femur and the great trochanter. There was an abscess. The roentgenographic findings were conclusive.

A arthrodesis the technique of which is described in detail was done September 8 and the limb then fixed with a large plaster of Paris spica in slight abduction and external rotation.

In the latter part of October the temperature became permanently normal and in the latter part of December the general condition was excellent.

The cast was removed at the end of January. Walking was then resumed gradually. At the time this report was made the hip as completely ankylosed the per articular tissues were dry and entirely free from edema. Pressure on the neck of the femur and percussion of the great trochanter were negative and walking was easy, painless and without fatigue. Good results were apparent also in the roentgenograms.

SORREI who read Vergo's report to the Society, said that to reach the articulation of the hip he uses the curved infratrochanteric incision. Olier's snuff box incision. He excises the great trochanter at its base. He fits it with the muscles inserted therein until he sees above the articular capsule a portion of the iliac crest and then files the latter for adaptation of the upper end of the graft.

In operating for coxalgia during the active stage he makes an incision parallel with the fibers of the gluteus maximus extending from the iliac border to the great trochanter. He then makes a vertical opening in the trochanter where the lower end of the graft is to be inserted. He separates the muscle fibers above the joint so as to expose several square centimeters of the iliac crest. He cuts a small flap and beneath this flap introduces the upper end of the graft. He called attention to the fact that Vergo took an osteoperiosteal graft from the tibia. This had to be fractured to be put in position but consolidation was rapid as the roentgenogram showed. Sorrei prefers to begin with the infratrochanteric stage and measure carefully the length of the graft necessary. He removes his graft with the electric saw. The graft is of no value for immobilization until after several months. Until that time has elapsed immobilization must be obtained by apparatus.

In the discussion which followed C. V. G. stated that the breaking of an osteoperiosteal graft will not have any effect on the final result. The graft does not become fused or play a role in fixation until after from ten to twelve months. From the sixth to the eighth month it is particularly fragile and great care is necessary to prevent fracture. Complete transformation of the graft is much more rapid when a viable graft can be used instead of a massive graft.

MATHEU stated that he disapproves of bone grafts taken from the tibia because they frequently become partially absorbed and give rise to pseudarthrosis. He prefers to use a tuberculous bony material (iliac flap and fragment of the trochanter) to establish extra articular arthrodesis.

SORREI said that in coxalgia of long standing he usually performs an immediate intra articular and extra articular arthrodesis but for recent coxalgia he prefers the Vergo technique as it is less apt to open an abscess or masses of tuberculous material. An accident that would be prejudicial to the future of the graft. P. C.

Pitz, H. D. G. D. C. A. V. J. H. D. D. T. J. H. P. G. H. H. 93 pp. 39, 86.

The author reviewed the literature on coxalgia and studied the clinical records of 77 cases treated at the Munich Clinic. The oldest case in the record was treated twenty three years ago and the most recent case six months ago.

Coxalgia is of 3 types—the rachitic, the congenital and the adolescent. Traumatic and static coxalgia belong to the adolescent type.

In the treatment extension is used to correct the shape of the rachitic femoral neck. After an effect on the neck of the femur has been obtained the rickets itself should be treated. In traumatic loosening of the epiphyses with coxa vara extension applied while the trauma is still fresh may result in reposition of the femoral head. In the cases of small children with congenital coxa vara persistent extension may influence the growth of the epiphyseal line. Extension has proved of value also in cases with contraction of the soft parts from trauma. The method by which extension is obtained is very important. Most satisfactory is longitudinal extension with rotation and abduction obtained with Unna's paste and plaster of Paris.

Treatment by reduction with or without adductor tenotomy has been the subject of considerable controversy. In old cases reduction leads to loosening of the epiphyses which by many is regarded as unfavorable because of the danger of pseudarthrosis. Bardenheuer says that when this method is used the head and neck must be maintained in correct position by abduction of 150 degrees and internal rotation of 30 degrees. In the interpretation of the roentgenograms made before and after operation great care is necessary. Stereoscopic views decrease the danger of error. A successful result depends on the state of nutrition of the femoral neck. The author does not believe that complete necrosis develops as a rule (Arthausen). When reduction is successful extension must be maintained by a suitable orthopedic apparatus for at least eighteen months after removal of the cast.

The author is very cautious in performing tenotomy of the adductors as the pull of these muscles may have a favorable influence on the position of the head of the femur. While for a number of years Lexer has pulled down the trochanter major with its muscle insertions. Lange has attached artificial silk tendons to the vastus lateralis loosened from its origin above on the femur and to the crest of the ilium.

The most common form of treatment for coxa vara is osteotomy. There are 22 types of this operation. The most logical is chiselling through at the level of the deformity (Whitman). This method has found relatively few advocates because of the fear of ankylosis or pseudarthrosis of the hip joint. Petrochanteric osteotomy corrects trochanteric coxa vara with good restoration of form. The subtrochanteric osteotomies in general correct only the angle of the femoral neck. The action of the iliopsoas may exert a dangerous pull on the fragments. Hass has obtained good results from the bifurcation operation and Schanz from the wedge shaped osteotomy with resection of the head. After the osteotomy a plaster of Paris extension bandage should be applied and after an interval the Hessing apparatus should be employed until the fragments are able to bear weight.

The bone operations of Mikulicz Bircher and Kocher are seldom performed today.

For difficult cases operative mobilization is still considered (Lexer). Lexer performed several successful plastic operations. Pitzen surgically mobilized 3 hips in young persons without interposing tissue and without entirely withdrawing the head but in all 3 cases the ankylosis recurred. In bilateral coxa vara one hip becomes affected before the other. As the tendency toward ankylosis is very great all patients treated for the unilateral condition should be carefully followed up and frequently re-examined.

In individual cases it is difficult to determine the prognosis definitely. A comparison of treated and untreated cases indicates that the necessity for treatment is determined by the cause type and severity of the affection.

In the discussion of this report RIEDEL (Frankfurt a M.) said that in wedge shaped osteotomy of the linea intertrochanterica he uses the Schanz disk with the check plate.

MOHMSEN (Berlin) stated that he performs cleft and peg osteotomy so that there is a hinge motion at the site of the osteotomy which further corrects the coxa vara.

BOEHLER (Vienna) reported that he combines the Schanz nail with nail extension at the tibial tuberosity. He recommends the use of the nail because it controls the angle with certainty. In a case of pseudarthrosis of the femoral neck in which he performed a subtrochanteric osteotomy a cure resulted in a few months.

MAU (Kiel) stated that he is not particularly in favor of internal rotation. For difficult cases he advocates reduction under anaesthesia. For other case he prefers subtrochanteric osteotomy in the form of a bifurcation. ENOEL (Z).

Guibal A and Marchand L. Tibiotarsal Arthroresis. Indications Techniques Results (L'arthrose tibio tarsienne. Indications techniques resultats). *Reu d'orthop* 1930 x xvii 97.

The operation arthroresis (limitation of the joint) was first performed by Toupet in 1920. It was named by Putti in 1922. The purpose of the procedure is to preserve the function of a tibiotarsal articulation which is poorly controlled by its muscles. The displacements of the foot on the leg are limited by the tibio-peroneal support afforded by a stable and rigid prop placed upon the tarsus.

The operation is indicated in club foot and in flail lower limb due to paralysis. It is superior to other attempts at tibiotarsal restoration such as arthrodesis and tendon and muscle operations because the desired attitude is obtained with stability and exactitude the movements of the foot on the leg are preserved in the most useful sector of their excursion and the muscles are placed in the best condition to exercise the activity of which they are still capable.

Walking requires a correct and stable foot. Tibiotarsal arthrodesis corrects the attitude but does so at the expense of the necessary mobility of the instep. Tenodesis which respects the mobility

of the instep does not prevent abnormal movements sufficiently. Arthrodesis solidly limits abnormal movements of the tibiotarsal joint without interfering with normal movements; it preserves the active flexion-extension of the foot on the leg. Whereas arthrodesis tendon transplantation tenoplasty and tenodesis do not. In total or subtotal paralysis of the lower limb, arthrodesis fails to give the necessary tibiotarsal play, whereas arthrodesis solidly limits the flexion of the foot without interfering with extension.

The material usually employed for the prosthesis has been an autogenous osteoperiosteal graft taken from the antero-internal surface of the tibia. The authors use it in grafts taken from the tibia on the normal side. The prosthesis usually rests on the astragalus or the calcaneum rarely on the whole tarsus. It may be buried its entire length in the host bone or merely placed upon the latter.

Del Torto's technique for external and internal arthrodesis is described in detail. Axial arthrodeses are the most important. Lutti's technique for anterior arthrodesis and the techniques of Pouquet (1922), Campbell (1923), Nov Josseland (1925) and Camera (1924, 1926) for posterior arthrodesis are described. The authors used a technique similar to that of Camera but they lengthened the tendon of Achilles obtained the transplant from the tibia of the sound side. But the transplant almost double the necessary length made twin grafts (one internal the other external) to support part of the tibial pressure. The fashioned grafts with a cone-shaped shaft hollowed out the beds for the grafts in such a way that the holes became narrower with depth and united a single incision.

The authors report the case of a girl whose right foot was partially flail. The operative indications were to reduce equinus while leaving the tibiotarsal sufficient play for the rolling of the foot during walking to correct a tendency to arthralgia and to strengthen the plantar arch. The Camera type of operation was performed. Six months later there was perfect adaptation of the prosthesis. The extension anterior tibial and plantar flexion showed movement. The tibiotarsal play between 67 and 87 degrees or a mobility of 20 degrees. The patient had a distinct sensation of stopping of the foot near the right angle and there was no inconvenience or pain. Twenty months after the operation the results remained excellent.

Taking months as a basis for judgment of the end results of tibiotarsal arthrodesis it can be said that the graft lives and adapts itself to its role as an obstacle by hypertrophy. The hypertrophy does not inconvenience the prescribed movements. The bone either incorporates the peg entirely or becomes continuous with it without a line of demarcation. The bone by which the peg is supported may undergo slight atrophy without causing functional disturbances.

From a study of the functional results of external and internal tibiotarsal arthrodesis after ten years

Torto concluded that external tibiotarsal arthrodesis will efficiently and durably limit the pronation of valgus due to abnormal articular laxity of the instep and that internal tibiotarsal arthrodesis will limit efficiently and durably the supination of varus due to the same condition. From statistics it may be concluded that anterior tibiotarsal arthrodesis will be efficacious in limiting flexion of the foot to a degree sufficient to permit normal support and in a swinging limb to a degree sufficient to give the foot an attitude which determines momentary rigidity of the limb. Posterior tibiotarsal arthrodesis will effectively limit the extension of a pes equinus.

The article is supplemented by a bibliography.  
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## FRACTURES AND DISLOCATIONS

Radcliffe H. E. Scullion of Bone and Its Relation to Bone Repair. *Surg. G. Obs.* 1931, 4.

Bast Sullivan and Wiedner have concluded that the cambium or osteogenic layer of the periosteum, the osteogenic cells lining the haversian canal and the periosteum are all active in the formation of the callus reuniting old bone at the line of fracture. The consolidation of the fragments further strengthened by extension of the new bone formed in the cut into the excavated space of the old bone. Reduction of the external callus is accomplished by osteoclasis. In the cases of persons in the prime of life the time required for the healing of fractures of the upper extremities is approximately six weeks and the time required for the healing of fractures of the lower extremities is longer. In the elderly repair usually takes twice as long and occasionally nonunion results as in fracture of the neck of the femur.

In the higher mammals compact bone undergoes senile changes. The changes which are limited primarily to the haversian system and secondarily to the interstitial lamellae are as follows: (1) dislocation of the organic and inorganic constituents of the haversian lamellae; (2) appearance (deposition?) of granules in the lamellae; (3) extension of the deposits to the periphery of the system; (4) absorption and disappearance of the lamellae from within outward; (5) widening of the canal and thinning of the system; (6) disappearance of the haversian systems and the formation of irregular spaces; (7) a decrease in the diameter; (8) a decrease in the thickness of the bony wall and in the weight and strength of the bone; and (9) an increased medullary index.

The authors studied these changes in the femur and tibia. In the femur the normal canal measures from 3 to 4 microns in diameter whereas affected canals measure from 60 to 105 microns to 17 by 3 microns. As the change progresses the riddling becomes manifest to the eye. The bone shell becomes thinner and quite porous as it is riddled by the enlarged canal which extends through at

least one half of its remaining thickness. In the tibia the normal canals measure from 30 to 40 microns in diameter whereas affected canals in the vicinity of the marrow cavity measure from 110 to 170 microns to 170 by 210 microns.

Fragility of old bone is generally believed to be due to loss of organic material but in old age the content of organic material in the bones is 42 per cent whereas in middle life it ranges from 39 to 40 per cent. Therefore the fragility of old bone is probably due to thinning of the bony shell.

RUDOLPH S. REICH, M.D.

**Poelchen: The Treatment of Fractures of the Upper Extremity by Active Extension without Fixation** (Die Behandlung der Fracturen der oberen Extremität ohne Fixation nur mit aktiver Extensionsbewegung) *Monatsschr. f. Unfallheilk.* 1930 xxxvii 193

Besides his own orthopedic apparatus which allows complete utilization of nerve stimuli and thereby hastens the healing of fractures of the lower extremity, the author recommends the use of Emge's treatment of fractures of the upper extremity. Emge obtains complete relaxation of the muscles for reduction by intermittent instead of constant traction. The patient pulls for from one to two minutes two or three times daily on a horizontal bar which is attached to the floor. In addition the physician makes passive movements at first every two or three days and later every three to five days. By this method shortening, excessive new bone formation, the interposition of soft tissues, flail joints, pseudarthroses, ankylosis and atrophy are prevented.

Poelchen rejects the use of splints in order to leave the innervation unhampered and avoids every external cause of movement. His adult patients are subjected to continuous traction of at least 2 kgm. The weight is held with or between the fingers and is prevented from falling by a bandage attached to the wrist. The patient is instructed to execute swinging movements while lying on a table so that the shoulder blade is prevented from participating in the movement. Poelchen cites numerous cases in which successful results were obtained by this treatment. After several days he permits the patient to work with instruments or tools which is much better than the use of any other mechanical apparatus. The period of healing is greatly shortened.

Single fractures of the shoulder blade or clavicle do not need any special care. Fractures of the forearm are more difficult. For the latter Poelchen has often been compelled to resort to operation. He considers as particularly unfavorable fractures of the metacarpal bones, particularly those of the second metacarpal. In cases of fracture of the fingers extension by mechanical devices should be abandoned. The working capacity of the workers who were treated by fixation is compared with the working capacity of those treated by extension and those who received no treatment. The results indicate

that the average duration of treatment and the interference with working ability was much greater in the first group than in the second and third groups.

VOLKMAN (Z)

**Juvana: E. Fracture or Detachment by Avulsion of the Internal Condyle of the Humerus with Penetration of the Fragment into the Intra-Articular Space. The Necessity for Immediate Operative Treatment by Osteosynthesis** (Fracture ou décollement par arrachement de l'épitrachée avec pénétration du fragment dans l'interligne articulaire. Le traitement opératoire d'urgence ostéosynthétique s'impose) *Bull. et mémoires de la Société de chirurgie* 1930 lvi 847

The author has recently treated three cases of fracture of the internal condyle of the humerus. In two the condyle entirely detached by avulsion became lodged in the articulation between the olecranon and the trochlea, maintaining the forearm in abduction and inhibiting movement of the joint. In one case the fragment became located at the side of the intra-articular space behind the coronoid process where it interfered with movement of the joint.

Juvana was able to study the avulsion site in two cases in one instance after a lapse of two days. The surface had a granular aspect and was free from spongy tissue which proves that although the condyle was joined to the diaphysis the union was too recent for bony consolidation and the fragment had yielded at the juncture line. In two cases the fracture was due to avulsion by the entire fibromuscular apparatus which is inserted there and was stretched and bent under the influence of a trauma that forced the forearm violently back in abduction. The clinical diagnosis of such a fracture may be difficult because of the swelling around the elbow but the roentgen diagnosis is easy.

The only satisfactory treatment is operation. The fragment must be extracted and refixed in position. The operation is one of urgency. When it is done in the first two days it is easy. After that it may be difficult.

The author describes his operative technique in detail and reports three cases briefly with roentgenograms taken before and after the operation.

FLORENCE A. CARPENTER

**Christopher F. Compression Fractures of the Spine. Late Results in Conservative Treatment of Uncomplicated Cases** *Am. J. Surg.* 1930 ix 4-4

Compression fractures of the vertebrae are the result of hyperflexion of the spine which occurs particularly in falls. Of late they have become more common in women because of automobile accidents.

One of the most important single factors in the treatment is the proper care of the patient's mental condition. In the author's opinion the patient should be informed of his condition truthfully and accurately. He should be told that he has not a broken

back in the usual sense of the word but a lesser injury of one of his vertebrae and that the prognosis is excellent if he will follow instructions implicitly.

The author's usual treatment consists in suspending the patient prone in the hammock of an Abbott frame with the back in hyperextension and applying a plaster body cast in this position. In some cases a strong downward thrust is made over the injured vertebra before the cast is applied. After the patient is placed in a bed a large ventral window is cut in the cast to facilitate respiration and keep the patient comfortable after eating.

The patient is kept recumbent for at least six weeks and then gradually permitted to walk about with a well-fitted Taylor spine brace. The spine brace is worn for from three to nine months and then removed gradually.

In the cases of two of the author's women patients a body cast was not used; the entire treatment being carried out on a Bradford frame in lordosis. In the cases of rather fragile elderly women Christopher has recently employed upward traction to a Balkan frame to secure hyperextension. After the patient is placed on the Bradford frame an ordinary woman's corset is placed under the site of the injury. The sides of the corset are then trimmed off and attached by numerous adjustable tapes to a 12 by 14 in. wooden spreader bar. The 10 spreader bars are in turn attached to an overhanging spreader which is suspended from the Balkan frame by a turnbuckle attachment. The turnbuckle is tightened up a little each day during the first week until the proper hyperextension of the spine is secured.

After the patient is ambulatory it is important to adjust the Taylor spine brace with brace wrenches so that it conforms accurately to the lordosis curve of the back.

Of nine cases treated by these conservative measures and followed for two to seven and a half months the result was excellent in five (55.5 per cent), good in three (33.3 per cent), and fair in one (11.1 per cent). H. E. LECHE, VELL, MD.

Lange M. End Results of the Non-Operative Treatment of Congenital Dislocation of the Hip. (D. E. d. t. b. l. t. g. n. B. h. n. d. l. g. d. n. g. b. H. f. e. t. e. k. u. g. t. h. d. d. d. d. t. h. t. h. p. g. l. l. s. h. 93 pp. 9. 66)

American surgeons believe that an interval of three years is sufficient to demonstrate the end results of reduction of congenital dislocation of the hip. Lange accepts this view. Cases with normal anatomical findings he considers cured. He reviewed the cases of about 1,500 patients with a total of over 2,700 dislocated hips.

In 5 per cent of the cases reduction could not be effected. In 3 per cent the hip underwent reduction while it was in the cast and in 4.5 per cent after the removal of the cast. Subluxation occurred in 8 per cent. The cause of relaxation and subluxation was a flat acetabulum in 75 per cent of the cases, antetorsion in 20 per cent, and the interposition of

soft parts in about 5 per cent. Late luxation and subluxation were probably the result of increased use of the joint but they never occurred in joints that were anatomically healed. The incidence of coxa vara was 3.5 per cent. Since coxa vara does not develop until after the second cast has been put on, Lange attributes it to reduction of the degree of abduction during the changing of the cast. Late coxa vara which constituted a third of all cases of coxa vara is a consequence of functional overlo. The incidence of deformity of the head was 1 per cent. Lange attributes deformity of the head to the age of the child at the time of reduction and believes such deformity is rare when reduction is done in the first two years of life. The degree of motion in the hip is usually good in spite of deformity of the head. The causes of deformity of the head include reposition trauma, poor fitting together of the head and the acetabulum, and disease of the endocrine glands. For the prevention of deformity of the head the reduction must be done as early as possible and gently. The head must be placed deeper in the acetabulum than usual, and after removal of the plaster cast weight bearing must be resumed only very gradually.

Changes in the acetabulum were few in the cases reviewed. The cause of failure of formation of the roof of the acetabulum must be sought in a constitutional deficiency in the capacity to form new bone.

Permanent contracture occurred in only 2 per cent of the total material. The number of temporary contractures was greater.

In conclusion the anatomically ideal cures are discussed. Their incidence was 63.7 per cent. Roentgenograms showed normal relations and the moment of the hip was unrestricted. If to these very good results the cases with good function are added, good functional results were obtained in 75 per cent of the cases. GLASSER (Z).

M. S. T. R. Th. Suglic. IT. atment of Neglected P. Inf. Congenital Dislocations of the Hip by the Bifurcation Operation. In the F. o. m. a. n. o. f. a. Butt. (T. i. m. t. h. g. l. d. l. t. e. t. l. s. d. l. h. h. t. h. l. e. t. d. e. d. l. u. p. l. b. f. u. t. c. e. l. b. u. t. e.) B. H. t. e. s. d. j. g. d. P. 93. 33.

The excellent results that have been obtained in reducible congenital dislocations of the hip by building up the border of the acetabulum with bone graft have led surgeons to construct a buttress above the head of the femur even when the latter cannot be brought into its normal position. The disadvantage of this procedure—prominence of the buttress absorption—led M. S. T. to combine the formation of a buttress with the Lorenz bifurcation operation.

In the procedure described an osteotomy is done through the lesser trochanter and the section is completed by fracturing the remaining bone. The medial insertions of the muscles being left intact. The distal fragment is then forced into the acetabulum. By

detaching the capsule from the border of the acetabulum (through a Smith Petersen incision) the upper fragment is brought down as far as possible. A pedicled flap of bone is then fashioned from the external surface of the ilium and turned down over the head of the femur to form a shelf.

After the operation the extremity is immobilized in plaster in abduction and internal rotation for a period of three months.

In the cases of two patients who had previously been confined to bed the results were excellent.

ALBERT F. DE GROAT, M.D.

Lasserre C. Osteoplastic Buttreasing of the Hip Joint. Technique Results Indications (Les butées ostéoplastiques de la hanche techniques résultats indication). *Bordeaux chir.* 1930 No 1 4

The treatment of congenital dislocation of the hip by osteoplastic operations is one of the greatest advances in orthopedic surgery. However the indications, choice of cases and technique are still matters of controversy.

The objects of osteoplastic operations are to provide adequate pelvic support for the femur and to

correct the faulty position of the osseous levers and muscle insertions and the shortening of the extremity.

In a first degree or anterior luxation the building up of the border of the acetabulum will be sufficient for a good functional result but in the more advanced forms the head of the femur may escape around the buttress.

The methods of extra articular buttressing are of the following three types.

1. Modification of the orientation of the acetabulum by lowering its external portion. In subluxations the head of the femur must be lowered by forced abduction. The greater portion of the border of the acetabulum can be lowered by forming an iliac flap. The dead space is filled with osteoperiosteal grafts from the tibia or iliac crest.

Partial reconstruction of the acetabulum with an iliac bone flap to form an artificial roof.

3. The formation of an osseous buttress in the iliac fossa.

The extra articular operations are well supported. Intra articular procedures are attended by considerable shock and as GOURDON stated in the discussion usually result in ankylosis.

ALBERT F. DE GROAT, M.D.



## SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Macaigne M and Nicau P Chronic Nodular  
Perla teriti Kussmaul's Di se (P a tiente  
eue (m l d d ku m l) âf m chr ngu)  
B H t em S mtd d h p de Pa 103 xl 66c

Nodular peritonitis as first described by Kussmaul and Mayer in 1866. Since then many cases have been reported, most of them in the German and Austrian literature. The majority of cases have been of the acute form and fatal. The diagnosis is usually made at autopsy.

The authors' case is unusual in that it was of the chronic form and the diagnosis was made by biopsy.

The general symptoms consisted of a very regular fever oscillating with remittances between 100 and 101.3 degrees F. The pulse varied between 85 and 95 and followed the temperature. There was marked asthenia associated with pain in the muscles and along the nerve trunks particularly in the upper extremities. The pain is especially severe in the region of the ulnar nerve. On the palmar surface of the left wrist there were small nodules which appeared at about the beginning of the illness. They were located in the dermis. The first symptoms were chills and fever, indigestion, loss of appetite and occasional attacks of diarrhea. These were soon followed by the general edema. From the history it seemed certain that the patient has suffered a similar attack eleven years previously. At that time however the nodules were formed in the lower extremities. During the period from 1922 to 1928 the disease had recurred every year.

In the course of the first attack, nodules varying in size from that of a buckshot to that of a half nut appeared at the angle of the jaw and on the side of the neck. Their development was associated with slight pain and itching. When they were fully developed the overlying skin became first red and then eczematous and ulcerated with the formation of a crust which soon crumbled.

Occasionally the filariae were tense. They coiled (phlyxula) made up (minute vesicle) which later exuded a (acid yellow) fluid.

Blood culture was negative. The blood count was leucocytes 9000 erythrocytes 3340000 polymorph nuclei 69 per cent eosinophils 12 per cent lymphocytes 10 per cent and monocytes 1 per cent. The haemoglobin was 70 per cent.

Biopsy on the nodules revealed the typical arterial lesions. In each nodule there were one or more arteriole showing periarteritis and great thickening of the muscularis due to dissociation of the fibers by a cellular fibrous tissue. About the artery there were concentric lamellae of very cellular fibrous tissue.

In the dermis there was a dense infiltration of lymphocytes and polymorphonuclear leucocytes with areas of necrosis flanked by giant cells. These lesions somewhat resembled those of actinomycosis. Efforts to isolate an organism were without result. However the character of the disease classifies it with the infectious granulomata.

ALBERT F DE GROAT M.D.

Leibolz E Th Ambulatory Treatment of Post  
operat e a d Puerperal Thrombophlebitis with  
Pla tic Support e B nd ge and Its Medico  
s cial Impo tance (De Th rpe der po t  
pe at e und pu t r len Th mblophle d n  
mt pl t che St u z herba d und f  
so i n dr sche Bede tu ) M k m f  
Wchn ch 03 1 17

The theories regarding the cause of thrombophlebitis are reviewed. In the treatment of the condition which is employed by the author the loss of elasticity of the tissues is compensated for by a bandage which applied upward from the ball of the great toe decreases the circumference of the leg to an extent sufficient to cause the venous and lymph spaces to approach the normal and thereby hastens the reflux of tissue fluids. The simultaneous rest provided for the tissues is also of aid in the ambulatory treatment of the pathological changes. The resistance offered by the bandage to the muscle contractions in voluntary and involuntary movements results in a physiological massage which further regulates the blood and lymph circulation improves the state of nutrition of the tissues causes the absorption of infiltrates and favors cure of the pathological condition by proper local treatment.

The technique of applying the bandage is described in detail. The incidence of embolism in treatment with such a bandage is very low. In inflammations of the saphenous veins react better than those of the femoral veins. A case of phlegmasia alba dolens was favorably affected by the treatment described. The bandage treatment is of advantage not only to the patient but also to the hospital and insurance companies. The results in sixty-one cases are reported.

H. STEGEMANN (Z)

И STEGEMANN (Z)

Smith & Lee R H and White J C The Elimination of Pain in Obstructive Vascular Disease of the Lower Extremity A Technical Review of Alcohol Injection of the Sensory Nerves of the Lower Leg *Surg Gyn & Obst* 1930 1: 394

The authors have found that pain in the low legs and feet secondary to obliterative vascular disease can be relieved by alcohol injection of peripheral nerves without causing paralysis of any of

the important muscles of the leg or foot. A careful operative technique and scrupulous asepsis are essential. A serious slough may be caused by spilling alcohol into the tissues. Incisions should be made above the lower third of the leg and should be vertical. They usually heal by first intention. Depending upon the length of the nerve trunk injected, the anesthesia produced may last but a few months or may be permanent.

The relief of pain was responsible for the saving of six of eleven legs otherwise doomed to amputation. The authors state that it should never be necessary to sacrifice a leg because of pain. After desensitization of an extremity by the method described, they frequently noted that the foot became drier and warmer and that previous color changes were eliminated. The surface temperature may rise 5 degrees F. This increase is probably due to the elimination of sympathetic stimulation as the result of the relief of the pain and the interruption of the course of the nerve fibers to their peripheral destinations. The majority of the sympathetic nerves course peripherally with the sensory nerves. The injection of alcohol is apt to be successful if the popliteal artery pulsates but in cases of arteriosclerosis with arterial obliteration above the popliteal vessel it may precipitate actual gangrene and

hasten amputation even if done in two or three stages. The authors believe that when in cases of the latter type amputation is necessary because of pain it is justifiable to desensitize the extremity first. After an extremity has been desensitized, ulcerations which previously resisted all methods of treatment will frequently heal.

JOHN H. GARLOCK, M.D.

Zanardi, F. The Surgical and Physiological Value of Arteriovenous Anastomosis. (Sul valore chirurgico e fisiologico dell'anastomosi artero-venosa). *Chirurgia* 1930, 1, 463.

In experimental studies of arteriovenous anastomosis of the femoral vessels the author found that soon after such an anastomosis the arterial blood became arrested in the veins as it was unable to overcome the resistance of the valves of the veins. In some of the experiments he observed that soon after the operation the upper part of the artery was filled with blood which pulsated and that pulsation occurred also in the collaterals. The outflow in a limb after arteriovenous anastomosis occurs through the collateral venous system which is insufficient to prevent stasis. The most frequent result of the operation in the experiments reviewed was thrombosis.

MARTIN J. DI COLA, M.D.

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Martin H T and Ellis E B Biopsy by Needle  
Puncture and Aspiration 1 5 4 93  
c 69

Several forms of trocar and needle for obtaining tissue from the living subject have been devised from time to time but all have the disadvantage of being special instruments not readily available. The procedure presented by the authors requires only an 18 gauge needle attached to a Record syringe and is advocated as being most universally applicable.

The indications for biopsy by needle puncture are tumor masses lying below the surface of normal tissue where surgical exposure is contra indicated. The contra indications to biopsy by surgical exposure are the danger of local or general dissemination of the disease or the fungation of tumor tissue through the operative wound interference with subsequent surgical procedures the surgical risk including hemorrhage and infection in obtaining specimens from deep masses and lack of justification for discomfort or expense to the patient when the information may be of doubtful value. Biopsy by needle puncture has none of these disadvantages and is associated with negligible risk. It does not require hospitalization it is acceptable to the patient and it makes possible histological diagnoses otherwise unobtainable or deferred.

After sterilization of the skin and infiltration with a 1 per cent novocain solution a stab wound is made with a bistoury pointed calpel. The needle is inserted and advanced slowly guided by the free hand until it is felt to enter the mass. The piston is then partly withdrawn to produce suction and with the vacuum maintained the needle is advanced and withdrawn from 1 to 3 cm. the movement being repeated two or three times if advisable. Before the final withdrawal of the needle from the tissue the piston is released to prevent splashing of the contents of the needle up into the syringe. After withdrawal of the needle the syringe is removed from it and filled with air and the contents of the needle are carefully expelled onto a glass slide. A search is then made for small fragments mixed with the blood or fluid in the syringe. When the syringe contains blood or tissue it is filled with 10 per cent formalin solution and then emptied into the specimen bottle. A small portion of the specimen on the slide is prepared as a smear and the remainder is prepared as is any small biopsy specimen. The methods of fixation and staining are described in detail including a quick paraffin method requiring about three hours and the preparation of the smear which takes only a few minutes.

Pathological experience and careful preparation of the specimens allow accurate diagnoses from aspirated material. The smear is usually sufficient to distinguish between an inflammatory process and a malignant tumor with atypical cells occurring singly or in groups. The paraffin section allows classification and often grading of the malignant processes. A particular search should be made for groups of cells atypical in size and shape with definite hyperchromatic nuclei and care must be taken not to place too much reliance on the direct smear which fails to show a definite group of such atypical cells.

In almost all cases it is possible to distinguish between benign and malignant lesions by the method described. The results have been checked in 60 per cent of cases by paraffin sections on biopsies obtained by the usual methods later in the course of the disease.

In the interpretation of smears or sections the source of the material must be kept in mind and any structure foreign to the type of tissue through which the needle has passed should be noted.

Sixty five cases of neoplastic disease in which the diagnosis was made by the method described are listed in a table.

E S PLATT MD

Bizin A T The Surgical Problem Presented by  
the Diabetic Crad M J 93 46

When it is properly controlled diabetes does not influence the treatment or prognosis of acute surgical lesions but when it is not controlled the prognosis as to healing and recovery is poor.

In a series of seventy three operations on diabetics there were two surgical deaths a mortality of 2.74 per cent. In a large number of operations performed on non diabetic patients in the same period the operative mortality was 2.41 per cent. It is evident therefore that properly controlled diabetics are subject to no higher mortality from operation than non diabetics.

The control of diabetes by urinalysis alone is imperfect and often inadequate. It is not the sugar excreted in the urine but the sugar retained in the circulating blood which indicates the extent of the disturbance of carbohydrate metabolism. Moreover the amount of sugar in the urine is not always an indication of the amount of sugar in the blood.

It is sometimes difficult to distinguish between an acute abdominal lesion and the diabetic pseudotumor of the abdomen. However in the former the pain precedes the vomiting whereas in the latter the vomiting precedes the pain. Moreover in the latter there is an indefinite diffuseness of the signs elicited upon abdominal examination and the general disturbance is out of proportion to the abdominal findings.

The author reports a case in which an infected ulcer failed to heal until a low grade hyperglycemia was corrected. It then healed in twenty days.

Faulty wound healing and the development of a low grade skin infection may be dependent upon a disturbance of carbohydrate metabolism. In such cases small doses of insulin exert an influence upon the indolent wound which is altogether independent of its effect upon the sugar content of the blood.

Diabetic gangrene is of two varieties. In one the chief factor is infection which progresses unhindered because of impairment of the resistance of the tissues by hyperglycemia. In this type saprophytic and putrefactive organisms which at times are gas forming are common. The arterial and capillary circulation is normal. The treatment consists in measures to control the diabetes and infection. When amputation is necessary it may be local and conservative.

In the other type of diabetic gangrene circulatory disturbances are dominant. This is the senile gangrene of the diabetic. It is known that diabetes predisposes to early arteriosclerosis. Senile gangrene is due almost entirely to obliteration of the capillary circulation. In many instances the distal arteries show no pulsation but the extremity is warm and well nourished and no great difference in blanching or rubor is noted when its position is changed. Conservative amputation is often successful but when the extremity is cold and shows a marked change of color with changes of position atrophy of the skin and subcutaneous tissue and absence of pulsation in the popliteal artery gangrene of even one toe calls for amputation at the mid thigh.

Acute pancreatitis is frequently followed by diabetes. The author reports seven cases. Acute pancreatitis is almost invariably associated with infection of the biliary tract. In such cases the common duct should be routinely drained at the time the gall bladder is removed. The author presents the blood sugar curves of two diabetic patients one treated by cholecystectomy alone and the other by cholecystectomy with drainage of the common duct. In the first patient the blood sugar did not materially change but in the second it returned to normal. Graphs are presented which show that when the common duct is not drained the blood cholesterol is not reduced to normal and in a few months is greatly increased. STANLEY H. MENTZER, M.D.

Sackij, A. The Microflora of Operative Wounds (Mikroflora der Operationswunden). *Nor J* 1/1 1929 xviii 394

In the Gergolav Clinic the field of operation is prepared by the Grossich method with 2 applications of alcohol and the surgeon's hands are disinfected by the Ahlfeld method except that the disinfection is continued for ten minutes instead of only three or four. The author examined the operative field bacteriologically in 132 aseptic operations performed in this clinic. As a rule 2 cultures were made

from the wound one immediately after the skin incision and the other just before the suturing of the skin.

In 18 cases (13 per cent) no bacterial growth could be obtained. In the remaining 114 the following bacteria were found: staphylococcus albus 49 times staphylococcus aureus 13 times staphylococcus citreus once diplococcus lanceolatus 28 times diplococcus vulgaris twice bacillus subtilis 24 times micrococcus candicans 6 times micrococcus tetragenus once Friedländer's diplococcus 3 times and sarcinae bacillus proteus vulgaris and cocci once each. Usually pure cultures of a single organism were found rarely mixed growths of 2 bacteria. Streptococci were never found. In aseptic cases without bacterial growth healing occurred by primary intention. Of the infected cases suppuration occurred in 8 and hematoma formation in 16.

The author concludes from his study that most aseptic operations are accompanied by bacterial infection. The diplococcus lanceolatus and staphylococcus aureus seem to be the most important causes of suppuration and postoperative infiltrations. The presence of bacillus subtilis indicates infection by air.

During grippé epidemics the greatest care must be given to the preparation of operative fields and disinfection of the surgeon's hands. Admittance to the operating room should be denied all persons convalescent or recently recovered from grippal infection. This rule should be applied also to the operating room personnel. The diplococcus plays a particularly unfavorable role in grippé. Microorganisms present in the operative wound frequently do not disturb primary wound healing.

G. Aulrov (Z)

#### ANTISEPTIC SURGERY TREATMENT OF WOUNDS AND INFECTIONS

Apostoleano E. A New Point of View in Surgical Treatment Does Mechanophysiotherapy Suffice? (Sur une nouvelle orientation dans la pratique chirurgicale. La mécanophysiothérapie suffit-elle?) *Rv de Ar* Par 1930 xlix 1

The author has studied the efficacy of various methods employed in the treatment of wounds. In experiments on horses three or four areas about 10 cm square in the costo abdominal region were denuded of skin subcutaneous tissue and superficial layers of muscle and the healing process occurring under the usual methods of treatment was compared with that occurring under the newer mechanophysiotherapy. Apostoleano believes that healing and particularly the formation of granulation tissue is not merely the result of a local process but depends largely on the function of the body as a whole. It is the result of a complex bodily function which directs the protection and the anatomicophysiological integrity of the organism. The healing process sets in more quickly in a wound which is exposed to the air heat therapy or heliotherapy than in a

wound which is treated with antiseptics or wet or dry dressings. A dressing on a wound delays the appearance of healthy granulations and furnishes conditions favorable for the growth of bacteria whereas arothermotherapy and heliotherapy maintain conditions which are unfavorable to the growth of bacteria. A dressing is sometimes of value to protect delicate granulation tissue from trauma but should be used only for aseptic wounds. In infected wounds it is dangerous.

ANTHONY R. CAMERO, M.D.

### ANÆSTHESIA

Franken H. Respiration Circulation and Metabolism During Narcosis. Studies of Their Behavior and the Possibilities of Influencing Them in Man and Animal. (Atmung, Kreislauf und Metabolismus während der Narkose. Studien über die Atmung, den Kreislauf und den Stoffwechsel während der Narkose.) J. f. G. K. 93, 1490.

The author describes experiments and a new narcosis apparatus for the study of the character and frequency of respiration in man and animals. The apparatus is somewhat similar to the Gnaethmey apparatus.

In the experiments reported the behavior of the respiration was registered in normal persons under avertin narcosis and in narhaphin scopolamin and light sleep. It was found that avertin lowers the respiratory function by about 40 per cent for 10 hours following its introduction. This reduction does not accompany unconditionally the decrease in blood pressure which varies widely in different persons. The respiratory center reacts very well to carbon dioxide in avertin narcosis. The use of avertin narcosis without facilities for administering carbon dioxide is characterized by the author as negligence. Preparation for narcosis with the usual doses of narhaphin scopolamin acts to increase or reduce the respiratory function according to the particular case. The behavior of the respiration in cats and rabbits with and without preparation with urethane under narcylen nitrous oxide and ethylene is shown graphically and in tables. The result differs according to the species of animal and according to the gas preparation. With urethane has a considerable influence. Comparative studies on man have not been made.

In man acetylene and nitrous oxide increase respiratory function. In the stimulating effect of the gases on respiration may be seen a cause for the slight shifts in the acid base equilibrium as the expression of lowered oxidation processes. The effect of carbon dioxide on respiratory volume per minute in narcotized human beings is discussed and compared with the effect of drugs which stimulate respiration—lobelin, caffeine, cardiazol and coramin. The specific exciting action of lobelin on the respiratory center in man is demonstrated objectively. The intramuscular injection of this drug, even in large doses, has little effect on narcotized human beings. When the venous route is used the effect is consider-

able and immediate though transient. The therapeutic breadth is slight. Caffein 0.2 gm introduced intravenously raises the blood pressure only very slightly but increases the respiratory volume by 14 per cent for about four minutes. When cardiazol 0.1 gm is given intravenously the blood pressure is raised from 90 to 105/65 but the respiratory volume is increased by 14 per cent for only one and six tenths minutes. Coramin 0.025 gm by the venous route does not change the blood pressure but increases the respiratory execution 10 per cent for six minutes the effect being therefore one sided exciting the respiratory center.

A comparison of these observations with those of earlier investigations makes it plain that none of the drugs investigated is as effective in stimulating respiration as lobelin. When administered intravenously, lobelin increases the respiratory volume 100 per cent and more though only for a few minutes. None of the intravenous methods in use at the present time excite the respiratory center to more than a limited degree or for more than a limited period. Carbon dioxide on the other hand exerts on the respiratory volume an intensive influence which can be made stronger or weaker at will and prolonged as much as desired provided the power of inspiration is still present.

The author next reports investigations of the behavior of the circulation under acetylene, ethylene, nitrous oxide and avertin. The blood pressure in cats and rabbits with and without preparation with urethane is recorded. The blood pressure was raised by acetylene and ethylene but was uninfluenced by nitrous oxide. In human beings determinations were made with the Smith and Haldane method with regard to the behavior of the total quantity of circulating blood in ether avertin and narcylen narcosis, light sleep and spinal anesthesia from the point of view of the danger of collapse in the sense of Eppenger and Schürmeyer. In this experiment the amount of blood in circulation behaved about the same as the blood pressure, i.e., with a falling blood pressure there was a decrease and with a rising blood pressure there was an increase in the total quantity of blood in circulation. Accordingly gas narcosis opposes collapse. The other methods favor it. Spinal anesthesia favors collapse only in the first fifteen minutes.

The output of the heart was measured by Bapkin's method in animal under the influence of the gases narcylen nitrous oxide and ethylene. Under narcylen the output of the heart increased in correspondence with the increase in the blood pressure. Ethylene also increased the output of the heart. Nitrous oxide had no influence.

In experiments carried out on rabbits to compare the effect on smooth muscle of the different drugs used to produce narcosis it was found that acetylene exerted a powerful exciting influence on the contractions of the puerperal uterus. Nitrous oxide had a slighter effect or none at all and the effect of chloroform and of ether was strongly paralyzing.

The influence exerted on striated muscle by the different agents used to produce narcosis was studied on the rectus abdominis of rabbits. As in clinical experience the muscle was completely relaxed by ether and chloroform. Nitrous oxide did not influence its tension. Acetylene caused a pronounced state of tension. The acetylene tension could not be overcome by Crile's rectus blockade but was successfully combated by total blockade at the periphery.

A. HEYN (G)

#### Koster H and Weintrob M Spinal Anæsthesia Fatalities *Am J Surg* 1930 18 234

There have been numerous fatalities following operations performed under spinal anæsthesia. Some of them were probably due to the type of anæsthetic employed but a great many others apparently had no relation at all to the anæsthesia. Statistics regarding deaths from spinal anæsthesia will vary with the experience of surgeons employing this form of anæsthesia. Statistics from clinics in which subarachnoid block is used routinely show a much lower death rate than those from hospitals where spinal anæsthesia is used only occasionally. Death due to spinal anæsthesia usually occurs soon after the introduction of the anæsthetic into the subarachnoid space whereas death due to inhalation anæsthesia may not occur until a considerable time after the completion of the operation. The danger of respiratory failure from the action of the drug upon the medulla consequent on its upward diffusion

is negligible. The explanation of deaths following spinal anæsthesia requires greater care in the study of the phenomena attending such fatalities and thorough autopsies. The authors review a series of fatalities cited by Rygh and Bessezen.

In the discussion of the value of spinal anæsthesia before the Society of Surgery in Paris in 1913 and 1924 20 267 cases were reviewed in which this type of anæsthesia was used with 10 deaths. These cases are tabulated as follows.

|                     | Sp. 1<br>anæsthes | Deaths |
|---------------------|-------------------|--------|
| Duval               | 2 256             | 1      |
| Jonesco             | 548               | 0      |
| Dujaner             | 4 000             | 4      |
| Cauchois            | 500               | 1      |
| Pisson and Clavelin | 1 011             | 0      |
| Lepoutre            | 500               | 0      |
| Leclerc             | 300               | 0      |
| Labe                | 680               | 3      |
| Sauv                | 1 000             | 0      |
| Chifolian           | 1 000             | 0      |
| Riche               | 3 539             | 1      |

The authors analyze these fatal cases 4 fatal cases which they reported in 1928 and several others.

In the authors' total number of almost 6 000 general surgical cases there were only 6 deaths on the operating table. In all of the fatal cases the operation was performed under spinal anæsthesia.

FRANK J MCGOWAN M D

# PHYSICO-CHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Guggisberg H. The Influence of the Roentgen Rays on Offspring (D. L. flu. de Ro. nig. n. t. h. l. n. auf d. e. \ h. k. o. m. m. n. Sch. m. d. I. h. n. I. 93. 2. 3)

The author states that except in irradiation with the object of castration in which nevertheless a suitable interval should separate the irradiation from the last sexual act in order to exclude the possibility of injury to an embryo no irradiation of the abdomen not even a diagnostic exposure during pregnancy should be done without considering the possibility of injury to offspring. The same caution is to be observed in the so called stimulative irradiation of the ovaries especially since the mode of action of such treatment is still wholly hypothetical. The author disapproves of temporary castration and warns against irradiation for inflammation except when the changes in the adnexa are so marked as to make fecundation extremely improbable. (C. r. e. v. (G).)

Widmann B. P. and W. Atherton J. L. A Clinical Evaluation of Radium and Roentgen Therapy in Advanced Cancer (with various combinations of wave lengths). *Im. J. R. 1931* 2. 54

This article is summarized as follows:

1. Clinical experience indicates that certain cancers are radiosensitive and radioresistant.

2. Highly cellular cancers are extremely malignant and also very radiosensitive.

3. The future success of radiation therapy of all cancer must depend upon the development of some means that will permit the administration of greater quantities of radiation than are generally used and still preserve the integrity of the normal tissues as well as the general health.

4. The skin erythema dose or skin tolerance should be standardized by systematic and repeated ionization controls. A constant reading ionization system is ideal for this purpose. Every radiologist should know the milliamperes minutes dose equivalent to a given number of roentgens for his particular machine. Experience with more than 1500 doses of roentgen rays indicates 800 r to be a safe erythema dose.

5. Prolonged irradiations according to Regaud are indicated by the improved radiation effects at varying stages of cell division as observed experimentally and clinically.

6. Clinical result point to a selective action of gamma radium rays (with filtration equivalent to 2 mm of platinum).

7. Combinations of different short wave lengths of roentgen rays (20000 volts filtration by 0.5

to 15 or 20 mm of copper or zinc) or in conjunction with gamma radium packs to the same skin area will increase the skin tolerance for radiations from 30 to 40 per cent.

8. The combination of the shorter wave length radium and roentgen rays with a multiple skin port technique offers a safe approach to a method of administering 2 to 3 times the depth intensities of radiations that are generally obtained without deleterious effects to the skin or general well being.

9. Clinical impressions justify the inference that improved end results will be obtained in advanced cancer by the systematic application of combined short wave length radium and roentgen rays.

Zeleny F. An Extensive Ray Burn of the Skin Cured by Repeated Blood Transfusion (Br. lu. e. tr. s. t. m. d. e. d. l. p. a. u. p. s. les ray. \ gué p. trans. l. u. o. n. s. a. n. u. n. r. é. p. é. t. e. Rev. d. h. Ia. 930. 1. 75)

The case reported was that of a man thirty years of age who sustained a very extensive ray burn over the lumbosacral region during ray exposures for diagnostic purposes. Local treatment by the usual methods for six months failed to cause improvement. When the patient came under the author's observation he was in a state of extreme cachexia. Five blood transfusions given in the course of several weeks were followed by healing of the lesion and good recovery. (ANTHONY R. CAMERO M.D.)

## RADIUM

Stevenson R. M. The Intensity of Gamma Rays at the Surface and in the Region Immediately Surrounding Radium Needles (De. v. Strah. l. u. n. a. n. t. a. l. n. d. Oberfl. e. b. e. u. n. d. der n. h. s. t. u. m. g. e. b. u. n. g. o. n. R. a. d. i. u. m. n. d. l. 93. 49)

This article contains calculations of the distribution of intensity on the surface and in the immediate vicinity of radium preparations particularly radium needles for interstitial irradiation.

Three different needle diameters (outer diameter 5.20 and 3.0 mm) and six different needle lengths (0.5 to 1.5 to 2.0 to 3.0 and 5.0 mm) were investigated. The cylindrical needle wall was assumed to be 5 mm of platinum. A formula given in an earlier article (J. cl. r. d. o. 1921. 1. 89) was used. The calculations are carried out with maximum and minimum values for the absorption coefficients involved (radium sulphate, platinum and tissue). The results show the relative intensity values of different types of needles to be substantially unchanged by errors in the absorption coefficient. By means of a graphic method of integration it has

been proved that the irradiation intensity at the surface of radium preparations with a length greater than 1 cm. and an outer diameter less than 2.5 mm. may be computed as if the radium were concentrated in the preparation axis provided exactitude within 5 per cent is sufficient.

Proceeding from the gamma intensities at the surface of the preparation relative values have been collocated from which may be determined the irradiation time that with the use of different types of needles will give the same dose at the needle surface. As the intensities at this surface reach very high values on account also of secondary beta irradiation from the outermost layers of the preparations the suggestion is made that a maximum time of treatment which must not be exceeded when the different types of needles are used might be determined from these surface intensities.

The results of the calculations are collected in a number of tables and diagrams from which intensity

data applicable to all cases occurring in therapeutic practice may be obtained. The distribution of intensity for different types of needles placed in one and the same plane has also been investigated and corresponding curves have been plotted. It is pointed out that the values obtained are comparable only to a certain extent because of the qualitative differences at varying distances from the radium needle which are due in part to secondary beta irradiation.

At the end of the article are formulae, diagrams and tables for determining the irradiation intensity on the surface and in the immediate vicinity of radium preparations. Among these is a table of the

function  $\int_0^{\frac{\pi t}{\omega \cdot v}} d\varphi$  which is particularly important for the calculation of the intensity of rod shaped preparations.



# MISCELLANEOUS

## CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Bruni A The Influence of Glucose on the Development of Fischer's Phenomenon (Inf. n. del. gl. os. s. ll. lg. m. at. d. l. f. e. m. e. d. l. c. h.) Sp. m. tal. 93. l. xi. 75

The author reviews briefly the literature on the experimental production of epithelial proliferation (Fischer's phenomenon) following the local injection of various chemicals. Noting the important relation between carbohydrate metabolism and neoplastic development he investigated the influence of glucose on Fischer's phenomenon. The results of his studies show that the daily injection of large doses of glucose favors the development and persistence of atypical cellular elements and at times carcinoid formations like those seen preceding experimental tar cancers.

A. Lo. rs. Ros. M. D.

Mason J. B. Desmoid Tumors. 1. S. g. 93. x. 444

During the period from 1910 to 1929 inclusive fifty patients with desmoid tumors were seen at the Mayo Clinic. In the cases of thirty nine (78 per cent) information regarding recurrence was obtained from the patient or some other source.

Of the thirty nine cases in which the tumor was in the abdominal wall data concerning recurrence was obtained in twenty nine. Recurrence developed in six. Of the eleven cases in which the desmoid tumor was situated elsewhere than in the abdominal wall a reply to the questionnaire was received in ten and recurrence was reported in one.

Recurrence developed in these cases in which the treatment consisted mainly or entirely of radium or roentgen ray irradiation. In a fourth case this treatment was otherwise unsuccessful.

Of thirty five cases in which surgical operation was the only or the principal method of treatment recurrence is known to have developed in four.

Sénéque J. and G. Inda J. P. Sacrococcygeal Chordomata (L. s. h. d. m. s. a. r. o. o. l. g.) Ch. d. ch. 93. x. 87

The authors report forty seven cases of sacrococcygeal chordoma. The article is supplemented with photomicrographs and a bibliography.

Chordomata were first seen in the occipital region by Virchow in 1857. Virchow thought they originated from cartilage but in 1838 Mueller demonstrated that they arise from rests of the notochord. Later they were produced in rabbit by puncturing the intervertebral disks.

Sacrococcygeal chordomata were not described until 1910. They are most common between the

ages of forty five and fifty years but the occurrence of a sacrococcygeal chordoma in a newborn infant and in a girl fourteen years of age has been recorded. About two thirds of the subjects of such tumors are men. The chordomata may be presacral or retrosacral or occur in the bone itself. In some cases they are not connected with the bone at all. Aberrant chordomata develop from aberrant rests of the notochord. They vary from the size of mandarin orange to that of an adult's head and are rounded or oval. They are generally quite regular but may be nodular from the presence of cysts. As a rule they are adherent to the bone and sometimes the top of the coccyx lies within the tumor. They invade the local tissues extensively but seldom form metastases. As the so called physaliphore cells characteristic they cannot be confused with any other form of tumor on microscopic examination.

The chief symptom is a dull continuous pain which is increased by movement and the sitting position. Frequently the patient is unable to sit down. Walking is often made difficult by sciatic neuralgia. Involvement of the terminal part of the intestine by the tumor is associated with stubborn constipation and the appearance of blood in the stools. When the diagnosis is doubtful it can be cleared up by rectal examination. The growth of the tumor is slow and the general condition remains good for a long time. The average duration of the disease is from five to seven years. Recurrences depend on the time and thoroughness of operation. They generally result from incomplete removal of the tumor.

A roentgen examination should always be made even if it shows only a bone lesion and not the nature of the tumor and a negative roentgenogram does not exclude the presence of a chordoma. In the beginning a chordoma may be confused with a simple contusion or fracture and later with cold abscesses of the bone. Congenital sacrococcygeal cysts must also be excluded.

The only treatment is surgery. Roentgen and radium therapy are generally not advisable. As the neoplasms are malignant excision should include the tumor the last two sacral vertebrae the coccyx and the insertions of the muscles. In some cases in which the tumor is high complete extirpation is impossible because of its intimate adhesion to the bone. Since on account of the nerves which emerge from it the entire sacrum cannot be removed it is perhaps better to give irradiation on the apical ends of these cases than to attempt an extirpation which will necessarily be incomplete. When the tumor compresses the rectum and produces a tendency toward occlusion an ileostomy should be formed.

Audrey G. McGowan, M.D.

Oertel H. On the Mechanism of Cancer Development. *Canad an M Ass J* 1930 xiii 183

The cancer cell is the expression of an atypical cell regeneration due to continued disturbances of the normal relations between the tissue cells and their vascular supply and innervation which bring about modifications in the course of cell differentiation. Its metabolic and formative functions therefore differ from those of the normal cells and cell growth.

It develops and grows on the basis of a general and organ disposition (metabolic peculiarities) in the host tissues and in itself.

The cancer cell is therefore not subject to the physiological influences of the surrounding tissues which normally determine the relative position and differentiation of new cells. Hence it grows as a new entity with its own blood and nerve supply which are adapted only to its growth. Wherever cancer cells grow the physiological stationary fully differentiated tissue is replaced not by any peculiar aggression of the tumor cells but by suppression due to the new actively growing tissue organization which is grafted onto the old stationary tissue organization.

As the tumor problem is a problem of growth it can be solved only by a study of the laws which govern growth. Many years ago Billroth stated that from the anatomical standpoint the conception of tumor should be rejected as we may recognize only tissue growths of simple or complicated types and should endeavor to trace their origin and fate as such.

HOWARD A. MCKNIGHT M.D.

Wright W. M. and Wolf G. G. L. The Serological Diagnosis of Cancer. Part I. *J. Cancer Resea. h* 1930 xiv 370

This article is a resume of the theoretical deductions leading to the discovery of the Fuchs serological test for the diagnosis of malignancy: a careful laboratory investigation of the test possibilities for error and suggested improvements and clinical experience with 116 determinations in malignant and non malignant conditions.

If serum from a patient suffering from cancer is allowed to stand in contact with washed blood fibrin from a normal person it produces proteolytic splitting of the fibrin which is manifested by an increase in the nitrogen content of the filtrate from the mixture. Normal fibrin is carefully separated, washed, ground to a powder, and put up in 5 mgm. sterile tubes. One tube of this is added to 1 c.c. of the suspected cancer serum and incubated for twenty-four hours. Trichloroacetic acid is then added, the mixture filtered, and the non-protein nitrogen in the filtrate determined by the micro-Kjeldahl method. With cancer serum a very definite increase (4 to 5 times the control) in the non-protein nitrogen is observed.

The rationale of the test is as follows:

The Abderhalden test for pregnancy depends upon the detection in the blood serum of certain substances which cause increased proteolysis evidenced by tests for products of protein splitting. A

very loose analogy between the formation of the placenta and the development of malignant growths suggested to several investigators that the blood of cancerous persons might show similar changes. A low percentage of successful diagnoses indicated merely that unknown adventitious factors superimpose themselves and sometimes hide the sought-for reacting substance. A precipitin reaction with cancer and placenta extracts reacting with the corresponding sera had been obtained (anti-erum for specific organs was obtained by immunization). Abderhalden believed that normal serum contains no ferment capable of splitting protein but when Stephan and Wohl using animal fibrin noted proteolysis Fuchs reasoned that proteolysis takes place when the fibrin is from another animal (heterologous) while sera and fibrin from the same animal (homologous) causes no proteolysis. In tests on cancer patients he found proteolysis when cancer serum was mixed with fibrin from a normal blood or cancer fibrin was mixed with normal serum but no reaction if the serum and fibrin came from the same individual. Tuberculosis serum also produces proteolysis on normal fibrin but this can be checked against. The authors report 116 examinations with this test.

No cases diagnosed clinically as malignant gave a negative reaction but a positive reaction (roughly 25 per cent) was given by miscellaneous conditions such as hemorrhoids, enlarged prostate, chronic appendicitis.

The cases are not entirely proved cancers as frequently reliance was placed on the clinical diagnosis alone.

Some of them gave positive reactions before treatment and negative reactions after the insertion of radium.

There is no advantage in using a larger amount of fibrin. The reaction follows Schutz's law: the amount of ferment action being proportional to the square root of the time of the reaction.

Other blood constituents than normal fibrin, serum albumin and globulin gave no increased proteolysis. Muscle tissue can be used but deteriorates in a few weeks whereas fibrin keeps for months.

Alcohol titration (Grossman method) of the products of proteolysis is suggested as a substitute for micro-Kjeldahl determinations.

HARRY C. SALTSTEIN M.D.

Kerner Samarina S. Experimental Treatment of Carcinomatous Mice by Cytotherapy According to the Method of N. Y. Kouschtalow (Experimentelle Behandlung mit Carcinoma affizierter Mäuse mittels Cytotherapie nach der Methode von Prof. N. Y. Kouschtalow). *G. i. k.* 1930 ix 27

The author has found that by means of cytotherapy it is possible to destroy carcinoma in mice. The histological process of destruction of the carcinoma cells is manifested by necrosis of the nuclei and karyolysis followed by connective tissue proliferation into the previously carcinomatous areas. When

cytotherapy is used prophylactically transplanted carcinomata can no longer gain a foothold. If the inoculation of mouse carcinoma otherwise gives a positive result in 100 per cent of cases the morbidity after prophylactic cytotherapy is zero.

OTTO HERMANN (G)

### GENERAL BACTERIAL PROTOZOAN AND PARASITIC INFECTIONS

D Hérelle. The Phenomenon of Bacteriophage and Its Biological Significance. (Le phénomène du bactériophage et sa signification biologique) *Bull. mém. Soc. ind. h.* 930 liv. 986

D Hérelle believes that the bacteriophage is destined to revolutionize bacteriology and the pathology, prevention and treatment of all infectious disease. He relates in some detail the various steps which led to its discovery. After his first studies he concluded that coincident with the onset of convalescence from various intestinal infections there appeared in the intestinal tract a lytic principle which possessed the property of destroying and dissolving pathogenic bacteria. Subsequently he found that this phenomenon occurs not only in bacillary dysentery, the disease he first studied, but also in all of the infectious diseases thus far studied by him or other workers in the same field, namely, cholera, typhoid fever, infantile diarrhoea, human and animal septicæmias and bubonic plague. In all of these conditions there appears during convalescence a bacteriophage principle which has the power to destroy and dissolve the pathogenic bacteria concerned in the production of the infection.

Direct microscopic examination shows that the process of destruction of the pathogenic organisms is a sudden bursting. The body of the bacterium splits little by little and suddenly ruptures, leaving nothing that is visible. From the findings of various experiments D Hérelle concludes that a bacteriophage is in the form of a corpuscle about 10 millimicrons in diameter and that it multiplies very rapidly at the expense of bacteria.

There is definite proof that the bacteriophage corpuscle acts on bacteria by means of a ferment which it secretes. The secretion of a soluble ferment by an organism necessarily implies the existence of a metabolism in that organism. The bacteriophage is therefore a living virus, a bacterial parasite. The fatal disease of bacteria caused by the bacteriophage is known as bacteriophagia. The phenomenon of bacteriophage is just another example of the general and well recognized biological phenomenon of parasitism.

Some bacteriophagic principles are specific. Others have a group action. Some, for example, attack the bacillus coli, bacillus dysenteriae and the vibrio of cholera, while others attack the bacillus coli, bacillus pestis and bacillus typhosus. They vary considerably also in the intensity of their action. Some are rather feeble and others are powerful. Experience has shown that the bacteriophage

does not make its appearance only at the time of the infection. From a few days after birth it is always present in the intestinal tract of all living beings from molluscs to man and multiplies at the expense of the bacillus coli. It is able to adapt itself to act as a parasite against bacteria which it was at first unable to attack. As this power of adaptation varies considerably the principle of treatment with bacteriophage consists in injecting into a diseased individual a bacteriophage which has previously become adapted to living as a parasite on the organism which is the specific cause of the disease to be treated.

In non intestinal maladies such as bubonic plague and the septicæmias the difficulties in obtaining material have hindered a complete study of bacteriophage action, but the fact that D Hérelle has been able in every case to isolate a bacteriophage from the diseased tissue, buboes or blood at the onset of the illness indicates that the mechanism of cure should be the same in every instance.

These observations tend to show that contrary to the theories heretofore accepted recovery from an infectious disease is due not to the production of immunity but to the action of a bacteriophage. Immunity follows recovery and does not precede it. The possibility of relapse shows that true immunity is established certainly not sooner than several days after the onset of convalescence.

D Hérelle describes the technique of treatment with bacteriophage and cites good results of treatment in bacillary dysentery, cholera and bubonic plague. He has found that the action of bacteriophage is often slower and sometimes nil in cases which have previously been treated with vaccines and antiserum. He therefore believes that bacteriophage should be used to the exclusion of other forms of biological therapy.

A. THORNER CAMER, M.D.

Fiesinger N. Defensive Bacteriophagy in Septicæmia. (La bactériophagie défensive dans la septicémie) *P. néd. P.* 93 xx 99

It is generally believed that the cure of septicæmia is due to the destruction of the bacteria. That this is not true is shown by the virulence of pneumococci after desferescence in pneumonias; the rule of the bacilli in typhoid carriers and the virulence of streptococci in terminal metastatic abscesses. The patient is cured but the bacteria are very much alive. Septicæmia is cured not by destruction of the bacteria but by their fixation—bacteriophagy.

Bacteriophagy takes place in the blood and tissues. There are two elements in the blood that fix bacteria—the globulin and the leucocytes. Bacteria agglutinate around the platelets. The theory that leucocytes destroy bacteria is erroneous; they only fix them. In the tissues bacteria are fixed primarily by the reticular endothelial cells. These cells fix bacteria just as they fix inert particles of dye. Blocking the reticulo-endothelial system therefore increases the severity and duration of septicæmia.

After being fixed the bacteria are excreted through the bile, urine, pancreatic fluid and saliva.

Between the blood capillary and the intercellular bile duct there are two kinds of cells. Kupffer's stellate cells and liver cells. Experiments carried out with dyes have shown that Kupffer's stellate cells have a chromopexic function and the liver cells a chromogenic function. Their function is the same with reference to bacteria. In experimental septicæmia Kupffer's stellate cells fill with bacteria which pass into the bodies of the liver cells and from there fall into the lumina of the ducts without losing their virulence. This is why the bile is always septic. The same process takes place in the pancreas, the parotid glands and the kidneys.

A curious form of fixation of bacteria is the intravenous form. Sometimes when phlebitis develops the general symptoms decrease as if the bacteria had suddenly become fixed in the clot. Sometimes the septicæmia is so severe that the fixation is not sufficient to arrest the course of the disease.

Bacteria may be fixed also by metastatic foci such as the periosteal abscesses of typhoid fever, subcutaneous or deep abscesses and turpentine abscesses.

The initial stage of recovery from septicæmia is therefore fixation of the bacteria. After their fixation the bacteria are destroyed or eliminated.

AUDREY G. MORGAN, M.D.

Tallice R. V. Three Years of Pyrexotherapy with *Treponema Hispanicum* in Uruguay (Trois ans de pyrexothérapie par le *treponema hispanicum* en Uruguay). *Rev. S. d. l. de méd. 1 de l.* 1930 1 353.

The author believes that at the present time the best treatment for general paresis is pyrexotherapy. The most satisfactory results are obtained from the inoculation of virulent bacteria. To date the only methods which have been found of value are the production of malaria and recurrent fever. However in 10 per cent of the cases the malaria has proved fatal. Recurrent fever is associated with less danger.

Tallice reports experience acquired with recurrent fever in Uruguay during the period from 1927 to 1929. The method was introduced at about the same time by Plant and Steiner, Weyandt and Kirschbaum and Muhlens. First attempts with inoculation to cause recurrent fever were made with *treponema duttoni*, the agent of the African variety (Novy and Knapp).

The *treponema hispanicum* discovered by Sadi de Buen provokes a relatively mild disease. It is transmitted by a tick (*ornithodoros maroccanus*). Following the encouraging results obtained by Brumpt of Paris it has been widely employed in Uruguay. Its use demands the close cooperation of a parasitologist and a neurologist.

The virus can be preserved by means of infected ticks. To insure infection of larvae and chrysalises the ticks are passed at times over infected animals. The virus may be preserved in receptive animals such as guinea pigs, rats, mice, rabbits, monkeys, cats and dogs. The technique of its use is described by Nicolle and Anderson. The organism is easily cultivated anaerobically in non-inactivated rabbit serum.

In clinical cases inoculations are made subcutaneously or intradermally with blood from infected animals. For conservation of the virulence man to man inoculations are advisable from time to time. The course of the experimental disease is mild and without mortality.

In general paresis the results have been quite good. Of 122 patients 17 were able to resume their occupations and 32 were greatly benefited. However 29 showed only transient improvement and 44 were not benefited.

In epilepsy the frequency of the attacks was reduced and in early cases presenting the postencephalitic parkinsonian syndrome definite improvement resulted.

The numbers of cases of other conditions treated were too limited to justify conclusions.

ALBERT F. DE GROOT, M.D.

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## SURGICAL TECHNIQUE

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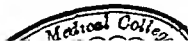
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*Supplementary to*  
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# INTERNATIONAL ABSTRACT OF SURGERY

FEBRUARY 1931

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Patey D H The Mixed Tumors of the Salivary Glands *Brit J Surg* 1930 x ii 41

In his introduction to a review of fifty five cases of mixed tumors of the salivary glands Patey discusses the problems of terminology and histological characteristics which appear to have been the main obstacles to a proper understanding of these neoplasms His study dealt with the histological appearance and clinical course of the tumors and the relation of the histological structure to the clinical manifestations

Histologically the tumors are of four types all very cellular The typical group show adenomatous formations and myxomatous tissue Those of another group are poorly differentiated tumors to which the term sarcomatous has been applied Those of a third group are well differentiated tumors which have been described as adenomatous Those of a fourth group show irregularity of cell structure and nuclear changes

It is believed that these mixed tumors of the salivary glands have an epithelial origin as all of the varieties are made up of the same types of cells many of the cells are distended by a granular secretion suggesting their origin from an epithelial secreting organ and many investigators believe that the so called cartilage deposits formerly thought to be present in these tumors are fibrillar condensations of myxomatous tissue which result in a pseudocapsular arrangement around the cells

The region involved in the fifty five cases reviewed was the parotid gland in thirty eight cases the submaxillary gland in six cases the palate in five cases and other regions such as the lip the angle of the mouth the face the tongue and the sublingual gland in five cases In the report of one case the location of the tumor was not stated Recurrence developed eleven times in the parotid gland once in the submaxillary gland once in the palate and once in the sublingual gland In one of the cases with involvement of the parotid gland a recurrence appeared

after nineteen years No time limit of liability to recurrence could be set Parotid tumors recur more frequently than the others

Of twenty four cases of typical tumors recurrence is known to have developed in only four Seven of the patients could not be traced Of nine cases of tumor of the poorly differentiated type a recurrence developed in one Of six cases of tumor of the well differentiated type a recurrence is known to have developed in three Two of the patients with this type of tumor could not be traced Of eight cases of the poorly differentiated type showing irregularity of cell structure and nuclear changes a recurrence developed in five

The author attributes recurrences to seedling nodules present in the capsule which are not removed at operation and to the tendency of the salivary glands to develop tumors The parallelism between a high degree of cell differentiation and a tendency toward multiple tumor formation is cited to show that the apparent recurrences are not true pathological recurrences Of eleven recurrences studied four were encapsulated and seven infiltrating Recurrence of the infiltrating type have a less favorable prognosis than the others There is no evidence of a change of histological type in the recurrences

The treatment recommended by the author is a combination of surgery and irradiation with radium

CLARENCE V BATEMAN M D

### EYE

Kendall A I and Gifford S R Trachoma and Avitaminosis *Arch Ophthalm* 1930 iv 322

While the bacterium granulosis was found by Noguchi and others to be a cause of trachoma it is believed by many that such factors as dust flies and vitamin deficiency are contributory causes The authors conclude from experiments on rats that a lack of Vitamin A is not essential for trachoma infection However they do not wish their findings to be construed as disproving the theory that it may be a contributory cause LESLIE L MCCOY M D



Levine J P Paralysis of an Extraocular Muscle After Spinal Anesthesia 1 J Ophth 193 1 5 6

Following a review of the literature on paralysis of the ocular muscles after spinal anesthesia a Levine reports a case in which operation performed on the gall bladder under spinal anesthesia induced with procaine hydrochloride as followed by paralysis of the right external rectus. Convalescence was uneventful for three days after the operation but on the fourth day diplopia began. The paralysis as discovered after the patient left the hospital. There was no history of squint. A slight refractive error was found in both eyes. The usual field were normal. Wassermann tests of the blood and spinal fluid were negative. There was no loss of weight. The general health was good. The eye was examined at weekly intervals but as given no treatment. After nine weeks the paralysis began to diminish. Lighten weeks after its onset it had completely disappeared. L. M. L. McCoy M.D.

Gifford S R and Larrabee N K Inclusion Bodies in Artificially Induced Conjunctivitis 1 J Ophth 93 463

By producing conjunctivitis in animals with two chemical and an organism obtained from a source independent of trachoma and inclusion blennorrhoea the authors were able to obtain material showing typical inclusion bodies. The inclusions produced by the three agents used were identical in form and staining reactions. In the authors opinion the fact that such inclusions were produced by chemical agents is proof that they do not represent degenerated bacteria as suggested by Bengston and others.

The inclusions were identical in form and staining reactions with those found in trachoma and inclusion blennorrhoea. While they were not as numerous as in some cases of the latter condition they were no more difficult to find than in trachoma.

Gifford and Lazar believe it possible to conclude from this work only that such inclusions are produced by inflammation of the conjunctiva with swelling and lymphoid hyperplasia. This would explain their occurrence in trachoma and inclusion blennorrhoea without the assumption that they have a relation to a virus. Accordingly the presence or absence of inclusion bodies appears to be of no importance in the etiology or diagnosis of trachoma. L. M. L. McCoy M.D.

Rycroft B W Non Magnetizable Metallic Foreign Bodies of the Cornea With the Report of a Case 1 J Ophth 93 31 5

The author cites a case in which multiple non-magnetic foreign bodies were blown onto the cornea by an explosion of solder. Slit lamp examination revealed that the foreign material lay in the corneal epithelium and the superficial layers of the substantia propria but had not penetrated Descemet's membrane.

In the treatment it was decided to allow a second corneal ulceration to occur but when at the end of fourteen weeks only a few particles had been extruded it was decided to eviscerate the corneal epithelium. The cornea was covered frequently with 4 per cent cocaine and allowed to dry so that it was uniformly opaque. The epithelium was then denuded. The fact that only a few particles were removed indicated a marked cohesion between the cornea and the metal. Six weeks later the eyes were quieter the patient was able to resume work and the metallic particles were fewer. GEORGE R. McALIFF M.D.

Moor R F Two Cases of Epithelial Implantation Cyst of the Iris 1 J Ophth 193 496

The author reports two cases of epithelial implantation cysts in the iris which were operated upon successfully with restoration of normal vision. In both there had been a perforation of the cornea with inclusion of an eyelash in the iris. Such eyes are irritable and inclined to flash easily on examination. At the site of the cyst there is first noticed a woolly appearance of the iris with keratitis. It is not known by the author whether such cysts occur without the inclusion of an eyelash. GEORGE R. McALIFF M.D.

Samuels B Cystic Degeneration of the Retina 1 J Ophth 93 476

Cystic degeneration of the retina occurs in practically every pathological condition of the eye. The cavities may be classified as follows:

1. According to location with reference to (a) the optic nerve (b) the macular region and (c) the retinal layers—internal nuclear layer external pigmented layer external nuclear layer and nerve fiber layer.

2. According to ocular lesions (a) detachment of the retina (b) glaucoma (c) diseases of the blood vessels (d) papilledema (e) idiocyclitis (f) endophthalmitis and (g) tumors of the choroid.

The causes are disturbances of the circulation due to papilledema glaucoma obstruction of the central vein or to ins.

The cavity formation may occur without detachment from simple death of the cells or indistention as the result of pressure atrophy.

Old cysts are usually filled with clear fluid and recent cysts with a highly albuminous fluid. In some instances the cysts contain red blood cells.

Pseudocysts are spaces occupied by fat.

LESLIE L. MCCOY M.D.

Clemon M Unrecognized Retinoblastoma and Eudoretinblastoma Report of Cases 1 J Ophth 93 363

In the case of retinoblastoma reported by the author the history was of little aid in the diagnosis and the acute manifestations prevented observation of the condition of the vitreous chamber. Necrosis is a characteristic feature of retinoblastoma. Some authorities believe that it liberates toxins causing retinocyclitis others that the acute condition is due to local recurrence of the growth. In the author's case

the question arose as to whether vaccination three days before the onset of the eye condition had any relationship to the latter. The diagnosis of retinoblastoma was suggested by hemorrhage in the aqueous.

The author's case of pseudoretinoblastoma was that of a child three months old. The clinical manifestations in the eye were typical of retinoblastoma but the microscopic diagnosis was plastic cystitis with sequelae. Cystitis in infants is generally of infectious origin but in this case the source of the infection was obscure. It was impossible positively to exclude retinoblastoma but as pseudoretinoblastoma would have resulted in phthisis bulbi with complications enucleation was necessary whichever condition was present. **LESLIE L. MCCOY M.D.**

### PHARYNX

**McKenzie D.** Gradual Diathermy Destruction of the Faucial Tonsils. *J. Laryngol. & Otol.* 1930 xlv 686

The diathermy method of tonsil destruction demands considerable skill and attention to detail but as it makes much fewer demands on the patient's courage and endurance than the ordinary tonsillectomy it will probably become a popular method. It is a satisfactory procedure for dealing with the tonsils of that large group of persons who at the present time prefer to endure their symptoms rather than run the risks and submit to the discomforts of the ordinary operation. **JAMES C. BRASWELL M.D.**

### NECK

**Sabatini G.** Echinococcus Cyst of the Thyroid (Cisti da echinococco della tiroide). *Riforma med.* 1930 xlv 1357

A patient twenty one years of age was sent for operation with a diagnosis of cystic goiter. He came from a region where goiter is endemic. Operation showed a cyst containing about thirty hydatid vesicles mixed with pus. The latter explained the pain which the patient had suffered and the rapid growth of the cyst at first. Firm adhesions caused by the suppuration necessitated marsupialization. The patient recovered completely.

**AUDREY G. MORGAN M.D.**

**Moscowitz E.** The Nature of Graves Disease. *Arch. Int. Med.* 1930 xlv 610

The author regards Graves disease as a syndrome of disorders with a history extending over a long period of time which is characterized by a sensitive emotional neuropathic personality often shows familial and hereditary tendencies and is strongly influenced by environment. It may pass through various stages such as the formes frustes and basedoid stages.

There is no characteristic physical make up. While in some cases there may be a thymicolymphatic constitution the thymus gland does not acti-

vate the thyroid gland and the thyroid does not activate the thymus as is evident from the frequent occurrence of persistent thymus without Graves disease and of Graves disease without persistent thymus.

Undoubtedly the basic exciting factor is fear. The changes in the thyroid are the result not the cause of the disease and are probably due to the influence of the nervous system.

Graves disease is more common in females than in males and occurs most often after puberty. It is most frequent in races of high emotional development.

The diagnosis cannot be based on any single sign or test. In the treatment numerous factors must be considered including the constitution, the exciting psychic insult and the degree of hyperthyroidism as indicated by the basal metabolic rate. Otherwise no method will give satisfactory results.

After reduction of the metabolism by thyroidectomy the adjustment of the patient to her environment and stabilization of her personality remain to be accomplished. **W. O. JOHNSON M.D.**

**Pfahler G. E. and Vastine J. H.** The Results of Roentgen Therapy in Goiter Based upon Observations in 400 Cases. *Am. J. Roentgenol.* 1930 xlv 395

The 400 cases reviewed by the authors included 13 cases of simple colloid or non toxic goiter, 3 of the non toxic hyperplastic goiter of adolescence, 238 of the toxic hyperplastic or exophthalmic type of goiter, 26 of non toxic adenoma, 92 of toxic adenoma, 2 of non suppurative thyroiditis and 6 of carcinoma of the thyroid. The 13 cases of simple goiter were selected from 145 cases referred for irradiation because they had failed to yield to medical treatment or the patient refused operation. In 10 of them good results with disappearance of the goiter were obtained. Of the 3 cases of non toxic hyperplastic adolescent goiter the enlargement of the gland disappeared in all.

The cases of exophthalmic goiter are tabulated according to the severity of the thyrotoxicosis, the duration of the symptoms before treatment and its relation to the results. The average number of treatments given and the permanency of the results in cured or benefited cases. In 58.3 per cent of this group a definite cure for an average of over six years was obtained and in 28.3 per cent there was marked improvement. In 18 cases an operation was performed subsequently. In 10 of the latter there had been no improvement after an average of 4 roentgen treatments in 2 a post irradiation recurrence developed and in 4 which were inoperable in the beginning the condition was sufficiently benefited by roentgen therapy and medical supervision to make operative treatment possible. Nineteen patients with exophthalmic goiter were suffering from post operative recurrence. Seven of these were cured, 8 markedly benefited and 4 not benefited. Ten developed telangiectases and 4 subsequently had a

metabolic rate lower than normal. Nineteen patients have died since the treatments were given but the deaths of only 6 of them were attributed to hyperthyroidism. Those who died from hyperthyroidism were in a critical state of toxæmia; they failed to respond to the irradiation and succumbed before more than 1 series of from 1 to 3 treatments could be given. Two of them were suffering from a postoperative recurrence. The response to irradiation and the relation of the gain in weight to the decrease in the pulse rate and the metabolic rate are shown in a table. Another table compares the drop in the basal metabolic rate during roentgen therapy in the authors' cases with the drop in the basal metabolism in 100 cases treated surgically by Lahey.

Of the cases of non-toxic adenoma only those with small tumors were selected for irradiation. For the others surgery was considered preferable. In practically all of the irradiated cases the adenomata were given localized doses through single portals. In over 56 per cent of the cases there was complete disappearance of the adenoma to palpation for an average of seven years and in 26 per cent the size of the tumor was greatly decreased and the goiter became almost invisible.

The cases of toxic adenoma treated by roentgen therapy are tabulated in the same way as the cases of exophthalmic goiter. In this group 55.3 per cent of the patients were cured and 36.5 per cent were markedly benefited. As a rule the goiter was greatly decreased but frequently it did not disappear completely. Seven cases subsequently came to operation. Two of them had failed to respond to the irradiation. In the 5 others there had been marked relief of the toxic symptoms but the thyroid hypertrophy had persisted and caused pressure symptoms. Three cases were postoperative recurrences of these as evaluated as obtained in marked improvement in 1 and no improvement in 2. Twelve of the patients died but only 3 of the deaths could be attributed to the goiter. Four of the patients developed telangectases.

Of the 2 cases of non-suppurative thyroiditis 1 was apparently cured two weeks after a single irradiation and the other after a more prolonged course of treatment.

The authors discuss also 12 cases of sub-lingual goiter which they treated with the roentgen rays. Six were of the exophthalmic variety. Disappearance of the goiter was attained in 5.

Of 3 cases in which thymic enlargement was definitely shown by roentgen examination 2 were cured and 2 greatly improved by irradiation of the anterior mediastinum and thyroid region.

In 8 cases the simultaneous presence of uterine fibroids was recognized. In 6 of the 8 which were treated with the roentgen rays the irradiation was followed by disappearance of a marked decrease in the size of the tumors.

The roentgen technique is described at some length. The importance of eliminating associated foci of infection is emphasized. Reference is made

to the medical treatment which should accompany the irradiation and to the possible danger of the administration of iodine especially in cases of toxic adenoma. A table shows that the results of roentgen therapy in the authors' cases of hyperthyroidism were very similar to the results reported by others.

In summarizing their findings the authors state that 57.5 per cent of their patients with hyperthyroidism were cured, 30.5 per cent were markedly benefited and 12 per cent were benefited only slightly or not at all.

They conclude from their own observations and those of others that roentgen therapy offers as good prospects of cure or marked improvement as are offered by any other method but that in cases with pressure or embarrassment of respiration surgery is indicated. In non-toxic cases surgical or medical treatment is to be recommended depending upon the type. When medical treatment fails and surgery is refused in non-toxic cases several small series of irradiations may be given with little danger of impairing the function of the gland.

ADOLPH HARTU G M.D.

No. 12 and M. Th. Larynx. Rel. t. d. to Surg. ry of the Thyroid. Based on an Anatomical Study. S. 15. G. 5. Ob. 1. 93. 1. 449.

Careful dissections of the laryngeal and thyroid regions were made to determine accurately the distribution and relations of the superior laryngeal nerve and the anatomical relations between the recurrent laryngeal nerve and the inferior thyroid artery on each side. Nineteen dissections were made on larynges and thirty-one on the thyroid and perithyroid regions.

The usual teaching today is that the superior laryngeal nerve is sensory to the mucous membrane of the larynx through its internal branch and motor to the cricothyroid muscle through its external branch. Recent writers disagree me that. The author also disagrees. In eighteen of his nineteen dissections of the larynx he found that the interarytenoid muscle (adductor of the posterior portions of the vocal cord) was innervated exclusively by the internal branches of the superior laryngeal nerves. In only one specimen did this muscle receive branches from both the internal branch of the superior laryngeal nerves and the recurrent laryngeal nerves. In three specimens there was an anastomotic twig between the internal branch of the superior laryngeal and recurrent laryngeal nerve. The external branch of each superior laryngeal nerve was distributed mainly to the corresponding cricothyroid muscle (elongator and tensor of the vocal cord).

The dissection to determine the relation of the superior laryngeal nerve showed that this nerve arises from the ganglion nodosum of the vagus and courses parallel with and close to the superior thyroid artery.

The recurrent laryngeal nerve was found to ascend along a path a little farther from the tracheoesophageal groove than is usually stated.

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Biancheri T *Primary Hypertrophic Tuberculosis of the Breast* (Tubercolo primitiva periferica della mammella muliebre) *Rass gia italiana di clin e terap* 1930 xi 481

Biancheri reports a case of hypertrophic tuberculosis of the breast without axillary adenopathy in a phthisical looking woman twenty seven years old who had no other recognizable focus of tuberculous infection. Amputation of the breast resulted in cure.

From a review of the literature the author concludes that the disease is quite rare that it is much more common in women than in men that it occurs more frequently during the period of sexual activity and that pregnancy lactation inflammation of the breast trauma and heredity favor its development. It must be differentiated from non specific inflammatory processes and carcinoma.

ANTHONY R CAMERO M D

Taylor H C Jr *The Etiology of Neoplasms of the Breast with Notes on Their Relation to Other Tumors of the Reproductive System* *Arch Surg* 1930 xvi 412 597

The author deals at great length with the theory that a functional disturbance of the physiological relationship between the ovary and the breast is an important factor in the genesis of breast tumors.

The stimulus which normally produces physiological proliferation in the breast is an ovarian hormone. To this internal secretion the breast cell is specifically responsive throughout life. The earliest evidence of its response is noted in the newborn infant whose breasts show an activity somewhat similar to that of the maternal breasts. At puberty breast growth precedes the appearance of the menses by several years showing that it is due not to stimulation from the follicle or the corpus luteum but to stimulation from the ovary. During the menstrual cycle there is increased activity in the breast associated with an increase in the ovarian hormone in the blood. In relation to pregnancy breast activity shows 2 phases a proliferative active phase due to placental stimulation and a secretory passive phase occurring after parturition. The lactation period may be regarded as a period of physiological cellular degeneration or beginning in involution. At the menopause the cessation of ovarian activity is accompanied by gradual atrophy in the parenchyma of the breast.

Coordinated with the glandular changes under these physiological conditions there are histological proliferations which result from the same intrinsic causes. After cessation of any proliferative stimulus evidence of secretory activity appears in the breast.

Round cell infiltration which accompanies secretion is to be regarded as a physiological resorptive mechanism.

This changing picture of the structure of the breast is the normal physiological response of the breast parenchyma to the ovarian hormone.

Some of the phases of the more or less normal states of breast proliferation differ only slightly from those of certain neoplastic processes. There is considerable evidence that practically all varieties of tumor of the breast are dependent upon abnormal variants of the physiological endocrine states that normally produce breast growth. Indeed special forms of tumors tend to be associated with particular types of endocrine disorders.

*Fibro adenoma* Fibro adenoma appears to occur typically in the breasts of women with a generally underdeveloped reproductive system and under conditions in the body which are somewhat similar to those existing at the time of breast development at puberty. This observation is consistent with the highly organic character of the histological structure of the tumor and its frequent rather faithful reproduction of the normal gland. Moreover it supports the view that fibro adenoma is derived from previously undeveloped cell rests. In support of the belief that women of the fibro adenoma group are backward in development and suffering from some form of glandular derangement are the facts that the great majority are unmarried few have borne children of those who have borne children few have nursed them. There is often a history of abnormality of menstruation and premenstrual breast pain and dysmenorrhea from the time of puberty. Acquired pelvic disease is infrequent but the thyroid gland is often slightly enlarged the breasts are small and erect and have small nipples and areolae and the women are slender and usually a little under weight.

*Chronic mastitis* This condition is a secondary proliferative process occurring in involuting breasts under the influence of irregular declining ovarian activity. It appears typically in women approaching the menopause but also in younger women with disturbances of ovarian function. According to McFarland the cysts are evidence of incomplete involution after lactation hypertrophy. In Cheate's opinion the essential feature of the disease is hyperplasia. The majority of women with chronic mastitis are married and have borne children. The fact that most of them were able to nurse their children indicates that formerly the breasts were normal. Dysmenorrhea is rare in cases of chronic mastitis but acquired pelvic disease is frequent. Premenstrual breast pain is unusual in older women but fairly frequent in younger ones. Thyroid enlargement is unusual. The breasts are usually pendulous and

have large nipples and areolae. The body weight tends to be slightly above normal and frequently there has been a recent increase in weight.

*Painful nodules.* Painful nodules constitute a distinct pathological condition but the localized nodules are difficult to differentiate from fibroadenoma and the diffuse nodules are difficult to differentiate from chronic mastitis. The formation of painful nodules is characterized by proliferation in the period of full maturity in which involutional changes are not prominent. As a rule painful nodules occur in young women. About one half of the subjects have borne children. Their success in nursing has been variable. Abnormal menstruation of the acquired type and dysmenorrhea are fairly common while premenstrual breast pain acquired pelvic disease and enlargement of the thyroid are extremely frequent. The shape of the breast, the body form and the weight are not characteristic.

*Malignant.* The conclusions drawn by the author from a study of 271 cases of breast growths pertain only to the origin to tumors in general and not to the cause of malignancy in particular since practically all of the anomalies found were about equally frequent in the benign and malignant series. In spite of many reservations Taylor presents evidence that ovarian dysfunction is concerned in the production of cancers of the breast. The greater predisposition of unmarried women to malignancy of the breast indicate that inflammatory conditions incident to the puerperium are of the cause. The lower fertility of women with cancer is suggestive of relatively frequent functional pelvic abnormality. Failure to nurse successfully which has been suggested as a cause of carcinoma of the breast is probably due to an internal factor connected with the abnormal reproductive system. A large percentage of carcinoma of the breast occur at the time of the menopause. In abnormal stimulation of the breast by the varying breast med. Young women with cancer of the breast usually give a history of recent change in the type of their menstrual periods indicating change in the condition of the ovary. In older women the malignancy may be the result of a gradual transformation of abnormal epithelial tissues which began at the time of the menopause. The fact that dysmenorrhea is of moderate frequency in young women with cancer of the breast indicates that some of the early cancers may have been produced under the same conditions as those under which fibroadenoma arises. In carcinoma of the breast premenstrual breast pain is frequently a recently acquired symptom and there is often a history of a quiescent pelvic disease or a gynecological operation. The facts suggest that abnormal proliferation of the breast may sometimes depend on a disturbance of ovarian function caused by pelvic inflammation or congestion. The frequency of associated abnormality of the thyroid gland suggests the existence of a common stimulus producing abnormalities in the thyroid and mammary gland. Cancer occurs in all types of breasts—in younger

women under conditions similar to those which fibroadenoma develop and in older women under conditions similar to those of chronic mastitis. The body weight in cases of carcinoma of the breast is below the normal in the early age group and above the normal in the late age group. In this respect also cases of carcinoma resemble cases of fibroadenoma and chronic mastitis.

Pathologically the various forms of tumors of the breast have their counterparts in tumors of the uterus, thyroid, ovary and prostate. Etiologically tumors of the breast including carcinoma are closely related to those of the endometrium, thyroid and ovary are somewhat allied to myomata of the uterus and are in a way equivalent to tumors of the prostate.

From his study of the literature and his own cases the author concludes that a stimulus causing the formation of a neoplasm must be of the same type as that to which the particular tissue is biologically best adapted to respond with proliferation. If this theory is correct hormonal influences are effective in producing hypertrophy, hyperplasia and neoplasms of the breast. J. DAVID WILLIAMS, M.D.

#### TRACHEA, LUNGS AND PLEURA

Figl, F. A. Primary Carcinoma of the Trachea. *Ann. Surg.* 93: 446.

Although malignant tumors of the larynx are frequently encountered primarily carcinoma of the trachea is rare. More recently in the majority of cases such lesions are not recognized until they are so far advanced that treatment is of little if any avail. Few cases of primary carcinoma of the trachea in which the patient remained alive for more than a year are recorded in the literature. Figl reports such a case and 4 others presenting the condition which were seen in the Mayo Clinic.

The statistics cited by different laryngologists to compare the frequency of malignant tumors of the larynx with that of primary carcinoma of the trachea are considerably different. Since 1918 approximately 470 cases of carcinoma of the larynx and 5 cases of primary carcinoma of the trachea have been seen at the Mayo Clinic. In primary carcinoma of the trachea is observed more frequently in males than in females but 3 of the 5 patients seen in the Clinic were women.

The symptoms of malignant tumor of the trachea may develop insidiously or appear abruptly as a complication or follow an acute infection of the upper part of the respiratory tract. In some cases the primary symptom is a tickling sensation in the trachea and in the dyspnea. In a few instances hoarseness has been one of the first symptoms noticed by the patient but in the majority of cases it develops late in the disease. If at all. Loss of weight may be an early sign in cases in which the lesion is situated on the posterior wall as it has invaded the esophagus causing dysphagia. Generally however loss of weight occurs late.

The clinical course of the disease varies with the type of tumor its activity and its situation. The onset is usually insidious and without pain. Dyspnea becomes progressively more severe and eventually results in suffocation unless surgical intervention is successful in relieving it. From the onset of the dyspnea in a case of actively growing malignant tumor failure is rapid and progressive. Death is usually due to slow suffocation pneumonia or metastasis to adjacent organs.

Physical abnormalities in cases of primary malignant tumor of the trachea are often lacking. Because of the rapid development of the local lesion the general condition is good as a rule until late in the course of the disease. Paralysis of the vocal cords and the presence of metastatic lymph nodes in the neck indicate an advanced stage of the disease. The lesion in the trachea often appears as a sessile fungating mass springing from the lateral or posterior wall usually in the upper or lower third.

On account of the difference in terminology and the lack of microscopic data many cases of primary tracheal carcinoma reported in the literature are difficult to classify histologically. Epitheliomata are said to be comparatively rare but of the 5 tumors from which specimens were examined in the Clinic 3 were squamous celled epitheliomata 1 was an adenocarcinoma and 1 was a carcinoma (unclassified). All but 1 of the tumors in this group were highly malignant.

Because of the mildness of their symptoms patients with primary carcinoma of the trachea usually do not seek medical attention until the condition is well advanced. Even then its nature often remains unrecognized until late. If roentgenograms and general examination of the thorax are negative and in direct examination with the laryngeal mirror does not reveal the cause of the trouble bronchoscopic study is imperative. Many cases of primary malignant tumors of the trachea are allowed to progress to an advanced stage under the mistaken diagnosis of asthma. The differential diagnostic features of these conditions are definite however and should readily permit their recognition.

In general the prognosis of primary carcinoma of the trachea is unfavorable. As a rule the subject lives only a few months if not operated on but in some cases may live several years.

The treatment depends on the situation of the growth and its activity. Treatment with a possibility of cure can be carried out only in moderately early lesions situated in the upper half of the trachea. Destruction by surgical diathermy following exposure of the growth by tracheotomy and postoperative irradiation offer the best prognosis.

**Nystrom G. Experiences with the Trendelenburg Operation for Pulmonary Embolism. In Sig 1930 II 498**

Nystrom reports on five cases of his own and eight of other surgeons in which the patient survived pulmonary embolism.

In cases in which more than ten minutes have elapsed since the onset of symptoms of embolism an attempt at embolectomy is justified. Under favorable conditions complete cessation of the circulation for two minutes is not incompatible with life. Even after seven minutes the heart has been stimulated to action. When the circulation is suspended longer irreparable injury to the medulla is done. If results are to be expected from embolectomy the artery must be cleared and the blood current reestablished within from six to eight minutes.

The indications for embolectomy are not always easily fixed because there is no definite method of diagnosing pulmonary embolism. In one instance the author operated on a patient with uraemia who presented symptoms closely similar to those of pulmonary embolism.

The most important of the technical details of embolectomy are the avoidance of injury to the pleura and the prevention of pneumothorax. Through a longitudinal incision along the left border of the sternum the second third and fourth ribs are exposed the costal cartilages are removed the anterior mediastinal space is entered and the two pleura are separated to expose the pericardium. The pericardial sac is then opened by a longitudinal incision and the flaps are separated and fastened to the skin. A rubber tube is carried through the pericardial sinus around the great vessels and is drawn tight just before the pulmonary artery is opened. Through an opening about 1 cm long the Trendelenburg instrument is introduced into the pulmonary artery and the clot extruded. This is not uncommon for the embolic blood mass is fresh and loose that they offer no resistance to forceps and consequently cannot be grasped under such conditions. Nystrom uses a glass to glass apparatus. When the artery is emptied of the clot air enters. The air is replaced by slightly releasing the rubber tourniquet. The vessel is sutured the attempt to establish circulation by mechanical massage of the heart by gentle pulsating compression of the thumb and two fingers. Massage is dangerous. The injection of air into the bulbous arteriosus or the base of the heart has an immediate effect. As soon as established respiration should begin artificial respiration should be begun.

It is of prime importance to have well trained operating personnel in the operating room always in complete readiness.

Convalescence after embolectomy. The more common complications are pulmonary infarction empyema recurrent embolism.

**Wilson H. On Unilateral Paralysis by Evulsion of the Pulmonary Artery. In Sig 1930 II 487**

Phrenicotomy was first performed in 1911 for bronchiectasis of the left lung.

lung. In 1913 Sauerbruch first performed it for tuberculosis. Accessory phrenics were first noted in 1922. Since then they have been found in from 25 to 68 per cent of cases. It was formerly believed that injury to one phrenic nerve would be fatal but it is now recognized that complete avulsion of even both nerves can be done without unfavorable sequelae.

The diaphragm is of first importance in causing expansion of the apical as well as the basal portion of the lung. As the root of the lung is attached to the central tendon of the diaphragm through the pericardium a downward and forward movement of the entire lung is caused by inspiration.

Various studies suggest that complete paralysis of the diaphragm will reduce the volume of respired air by less than one half. It is the capacity for the thoracic intercostal type of respiration that makes the operation of phrenic avulsion clinically possible.

The author reviews several physical signs of unilateral diaphragmatic paralysis. Chief among these is failure of the cricoid cartilage to descend on inspiration. The best method of determining the presence of the condition is X-ray examination.

Phrenic avulsion causes the immediate ascent of the diaphragm on the paralyzed side. The rise may increase for six months and is permanent. The diaphragm soon becomes very thin and the muscle cells shrink and undergo degeneration. In the 200 cases studied the extent of the rise varied from 1 1/2 to 4 cm. Greater elevation is likely to occur in hypersthenic and sthenic persons than in persons of the hyposthenic type. The elevation varies also with the presence of thickened pleura and basal pleuritic adhesions. Estimations of vital capacity show an average reduction of 18 per cent following phrenic avulsion.

Relaxation and rest of the whole lung occur as a result of the decrease in the size of the pleural cavity and the failure of the hemidiaphragm to descend. The lower lobe of the lung is compressed also by the pressure of the raised and paralyzed diaphragm. The author does not agree with others that cough and expectoration are aided by phrenic avulsion. On the contrary he believes that the operation may have an unfavorable effect upon them.

Wilson has had only untoward results in 200 operations. In these instances there was an increase in the dyspnoea but in only 1 case was it serious.

The operation is a valuable supplement to thoracoplasty and also to artificial pneumothorax in which the pulmonary collapse is unsatisfactory because of basal diaphragmatic adhesions. It lengthens the interval between refills. However it is of doubtful value in decreasing the incidence of pleural effusion.

In tuberculosis phrenic avulsion has a beneficial effect on the local lesion on the toxæmia and the hæmoptysis but causes little change in the amount of sputum.

In bronchiectasis the results of combined artificial pneumothorax and phrenic avulsion are disappointing in the great majority of cases and phrenicectomy

alone is of slight value. Factor is lessened but expectoration is not affected.

The author believes that phrenic avulsion may improve drainage in cases of lung abscess and interlobar empyema and that it should be considered the treatment of pain due to pleural or pleuropulmonary adhesions. FRAZER BERRY M.D.

Holman E. The Fundamental Principles Underlying the Treatment of Intrapulmonary Abscess and Persistent Bronchial Fistulae. J. S. G. 1933, x, vi, 439.

The author states that the healing of pulmonary abscesses depends upon bacteriological and mechanical factors. In the first group he places (1) the resistance of the patient, (2) the virulence of the organisms, and (3) the number of types of organisms involved. He regards it as probable that abscesses produced by emboli infected with a single organism heal more promptly after evacuation than abscesses produced by multiple organisms which have entered the parenchyma by way of the bronchus.

The mechanical factors involved in the healing of pulmonary abscesses are (1) drainage, (2) the contraction of fibrous tissue deposited in the abscess, and (3) the re-expansion of the surrounding lung. Complete drainage should be secured if possible by way of the bronchus. The bronchoscopic method, assisted by removing obstructing granulation tissue or dilating constricted bronchi. In the presence of a wide open bronchus leading from an abscess cavity external drainage through the chest wall is contra-indicated as it may delay healing or prevent it entirely. A large through and through airway (bronchus- abscess external fistula) prevents the normal alveolar exchange and thereby causes atelectasis of the lung surrounding the abscess.

The best time to secure prompt healing of an abscess is immediately after its formation. Imperfect drainage or delay in securing complete evacuation by bronchus or external fistula favors the gradual deposition of fibrous tissue in the wall of the abscess which will prevent obliteration of the lesion by re-expansion of the surrounding lung.

Whether drainage is obtained through a bronchus or through an external opening the author believes the treatment of a pulmonary abscess requires absolute rest in bed until all clinical and roentgen signs of the lesion disappear. Pooling of pus in an abscess by gravity must be prevented at all times in order to prevent progressive fibrous thickening of the wall.

The healing of persistent bronchial fistulae associated with empyema or pulmonary abscess depends upon sufficient relaxation of the bronchus to permit closure by cicatricial contraction. This requires extensive mobilization of the chest wall by resection of the ribs overlying the pleural or pulmonary cavity and the removal of the neighboring ribs to which the fibrous wall is attached. Relaxation of the fibrous tissue lining the cavity is absolutely necessary to insure cicatricial closure of the

open bronchus. The implantation of muscle fascia or fat in an infected cavity although occasionally successful usually fails as it depends upon the adherence of imperfectly nourished tissue to an infected surface. EMIL C. ROBINSON, M.D.

**Eloesser L. Closure of Bronchial Fistula. *Surg Clin North Am* 1930 v 10:11**

Small fistulae resulting from the drainage of abscesses usually close spontaneously but in cavities of large abscesses which have been packed for a long time retraction and epithelialization occur the epithelium unites with the skin of the chest wall and spontaneous closure is no longer possible.

In cases of fistula resulting from lobectomy the fistula rarely closes. The lung retracts and the bronchial epithelium the epithelium of bronchiectatic pouches and the skin unite. The retracted lung takes on the appearance described by Lebsche as gridiron lung. Large tough septa carrying blood vessels and bronchi stand out between numerous pouches and depressions. At the apex of this multilocular sac it is possible with more or less difficulty to discover one or more open bronchi. A method of closure has been described by Lebsche.

Before operation the author's patients are kept under observation in the hospital for a few days to make sure that expectoration has entirely ceased and that the wounds are clean. Two hours before the operation they are given 2 or 3 gr of luminal and half an hour before the operation they are given from  $\frac{1}{4}$  to  $\frac{1}{2}$  gr of morphine sulphate.

In cases of lower lobe fistula the patient is laid on the normal side and in cases of upper lobe fistula he is laid on his back. The opening in the chest which in the course of healing has contracted considerably is circumscribed with a knife at the junction of the bronchial mucosa and skin being thereby enlarged to its original size. Bleeding is inconsiderable. When the resected rib ends are reached the pleural adhesions fastening the lung to the chest wall are separated by blunt dissection. As they are freed the edges of the bronchial fistula are caught with Albs clamps.

Fistulae resulting from lobectomy or from extensive cautery operations leaving merely the shell of a lobe are usually dissected out without great difficulty. Adhesions to the chest wall are thin and comparatively bloodless and can be separated by blunt dissection. Those to the diaphragm are tougher and contain large vessels. They bleed less if separated with the galvanocautery than if separated with the knife. Hemostasis should be accurate and all vessels should be severed between two ligatures. Pericardial adhesions and adhesions between two lobes are also likely to be dense. The dissection is continued until the pedicle is reached. The large pulmonary vessels supplying the opened lobe are caught tied and severed. A little lung tissue is left at the hilum to be used as a covering for the bronchial stump. Small incisions into the pedicle are alternated with suture and ligation until the opening

of the bronchus itself is reached. This is closed with interrupted stitches of fine black silk, the knots being tied toward the inside. The lobe is not entirely severed until the bronchus is closed and all of the vessels have been tied. The stump is then covered with whatever remains of the surrounding lung tissue or with bits of pleura. The cavity left in the chest after removal of the lobe looks surprisingly large but is rapidly obliterated by dilatation of the neighboring lobe and ascent of the diaphragm. Preliminary phrenicectomy will help greatly to obliterate the cavity left after removal of the lower lobe. Upper lobe cavities may be closed by paravertebral resection of a few of the uppermost ribs. The wound in the chest is closed around a small rubber drain. The skin and soft parts are pressed into the chest by means of a large soft rubber bath sponge held in place by adhesive plaster strapping.

In cases of smaller bronchial fistulae resulting from the drainage of large abscesses the lobe containing the fistula is thoroughly mobilized by severing all of its pleural adhesions, the edges of the tough membrane lining the fistula are caught and the membrane is dissected out from the lobe in which it lies. The dissection is bloodier than the dissection of an entire lobe and hemostasis is difficult as the surgeon is working not in a comparatively bloodless pleura but in the parenchyma of the lobe itself. Numerous pulmonary vessels leading to the fistulous tract require ligation. The dissection and ligation are continued until the sac depends from one or two larger bronchial branches. The latter are crushed and ligated or sutured with black silk, and the remains of the lobe are sutured over them with several layers of fine catgut. The lobe is handled gently. The chest is closed around a small rubber drain. The use of gauze packing is contra indicated. In the author's cases the fistula failed to remain closed only when the intrapleural cavity was so large and so stiff walled that packing seemed safer than closing the chest over it.

The operation is difficult technically but is not dangerous. In the author's cases the mortality was nil. The drainage tubes were removed after three or four days. The wounds healed well and the patients were discharged from the hospital after about two weeks.

Nine cases of persistent bronchial fistula are reported. GEORGE A. COLLETT, M.D.

**Fremont Smith, M. Lerman, J. and Rosahn, P. D. Primary Carcinoma of the Lung. A Study of Eighteen Autopsied Cases. *New England J Med* 1930 cci 473**

Primary carcinoma of the lung is far from a rare disease. It is found about once in every 200 autopsies and is the cause of about 1 of every 20 deaths from carcinoma. Weller states that 74 per cent of persons developing the lesion are males. Of the 18 patients whose cases are reported by the authors 17 were males. The youngest patient was twenty nine years old. The others were past forty years of age.



The symptoms vary but in the case of a man over fifty years of age the onset of cough with pain in the chest and dyspnea or hemoptysis should suggest cancer rather than tuberculosis. The symptoms of greatest importance to the patient may be caused by metastase. A unilateral sharply defined area of dullness and diminished breathing suggestive of encapsulated fluid may be due to cancer of the lung. Early in the disease examination of the lung may be negative.

GEORGE A. COLLETT M.D.

Golt E. V. Primary Carcinoma of the Lung and Bronchi. *Am. J. Med.* 93 65

At the Ancker Hospital St Paul Minnesota two deaths from primary lung carcinoma were recorded in the period between 1912 and 1921 and during the past twelve years sixteen more have occurred. Barron collected statistics indicating an increase in the incidence of primary lung cancer from 0.057 per cent in 1875 to 0.47 per cent in 1916. Reports from the United States Canada and Europe consistently show a marked increase in the condition. This may be due to the increased length of human life or to the reclassification of malignancies of the lungs or to improved diagnosis.

The chief etiological factors of lung cancer may be grouped as (1) bacterial infections of which influenza is the most important and (2) chemical and mechanical irritation due chiefly to the inhalation of tobacco smoke tar laden road dust or war gases.

Primary lung cancer may arise from (1) the columnar epithelium lining the bronchi (2) the mucous glands of the bronchi or (3) the squamous alveolar epithelium. All pulmonary cancers grow relatively slowly. Secondary growths occur most frequently in the liver suprarenal glands brain vertebrae and long bones.

Men are affected three times more frequently than women. The signs and symptoms are not characteristic. The onset may be so sudden as to simulate an acute pleural or pulmonary infection or the prodromal period may be so prolonged as to suggest a low grade chronic lung disease. In some cases the condition may not become manifest until after metastases have occurred. The diagnosis must be based upon a carefully taken history the findings of physical and x-ray examination and biopsy through bronchoscope irradiation and prompt surgery offer the best chance of benefit.

Golt reports three cases in all of which the diagnosis was proved at autopsy.

ALTON OCTEN M.D.

Daillon C. and Horwitz W. A. Primary Carcinoma of the Lung with Metastases to the Central Nervous System. *Tr. A. S. S. A.* 93 168

Metastasis of primary carcinoma of the lung to the central nervous system and other organs is not infrequently met. The first signs and symptoms of the condition are caused by the metastases.

Of 109 cases in which a diagnosis of primary carcinoma of the lung was made at the Montefiore Hospital New York involvement of the nervous system was found in 12. In 3 of the latter there were symptoms of compression of the spinal cord from invasion and destruction of the vertebrae by the metastases. In a case which came to autopsy compression and distortion of the cord without circulatory interference were found. The spinal cord is rarely the site of metastases from primary carcinoma of the lung.

In most of the cases with involvement of the central nervous system the neurological signs began suddenly. Neurological signs may be present without any evidence of pulmonary changes. Therefore a thorough physical and roentgen examination of the chest should be made in every case in which a tumor of the brain is suspected.

Metastases to the central nervous system may be single or multiple. It is thought that in cases of multiple metastases the tumor cells are carried in the blood stream from the pulmonary veins to the left side of the heart and thence to the central nervous system by way of the general circulation. Single metastases are attributed to transportation of the tumor cells from the lymph glands of the neck by backward flow of the lymph through the perineural sheath of the subdural and subarachnoid spaces and thence to the cerebral meninges.

Primary carcinoma of the lung is frequently diagnosed as pulmonary tuberculosis.

The most common histological types are those derived from the bronchi. JOS. H. K. NAYAK M.D.

Syme Thompson H. E. Spontaneous Pneumothorax. *Lancet* 93 79

Spontaneous pneumothorax occurring in pulmonary tuberculosis may often not be recognized. However it is not a frequent complication. Its cause is the breaking down of a lesion situated near the pleura which establishes a communication with the pleural cavity.

Complete spontaneous pneumothorax following the entrance of a large amount of air into the pleural cavity is manifested by sudden dyspnea and cyanosis an increase in the pulse and temperature and tachypnea. In an advanced case of pulmonary tuberculosis it may be fatal. The findings on examination are similar to those in a typical pneumothorax—hyperresonance on percussion absence of breath sounds reverberation of any sound produced with a and if the aperture is small cavernous breath sound. Pleural effusion may be ruled out. It is well known that spontaneous pneumothorax may follow artificial pneumothorax but under such circumstances it is usually recognized at once.

The prognosis in a limited case is good. If the condition is complete and the respiratory pressure in the pleural cavity aspirated the air may be indicated. This should be done when possible with the aid of a pneumothorax apparatus so that the effect of suction may be determined.

The author reports four cases in detail. In two the condition was due to the rupture of an emphysematous bulla in one it followed an attack of asthma which is very rare and in one it developed while the patient was undergoing artificial pneumothorax. Recovery resulted in all.

WILLIAM J. PICKETT M.D.

**Browne D. The Treatment of Empyema in Children.** *Lancet* 1930 LXXIV 733

The treatment described by the author has given such encouraging results that he has adopted it as a routine procedure in all cases of thoracic empyema. It is a distinct variation from the methods in vogue and has certain mechanical advantages.

While repeated aspirations and rib resection with a plain or flanged tube are useful and indicated in certain types of cases, these procedures do not fulfill all the requirements for rapid and complete cure. The breaking up of adhesions and digital exploration are useless and not without danger. The numerous disadvantages of closed drainage include incomplete emptying of the cavity, the difficulty of ascertaining the occurrence and amount of negative pressure in the cavity, the difficulty of maintaining an air tight junction, the impossibility of freely draining the cavity and the difficulty in maintaining patency of the small drainage way until all of the pus has been evacuated. However, closed drainage also has advantages and has saved many lives.

The author's method represents an attempt to retain all of the advantages of other treatments and yet establish drainage and allow irrigation with an easy outflow. It needs little attention and definitely indicates the cessation of drainage.

The steps in the technique are outlined in detail. Infiltration with 0.5 per cent novocain should always be used even in children. The sixth or seventh inter-space in the posterior axillary line is incised and a section of intercostal muscle removed. The pleura is bluntly opened and if no pus is encountered a section of rib is resected. A lower point of attack is inadvisable on account of danger of injury to the diaphragm. As soon as pus appears its gush is stopped by a swab and two de Pezzer self retaining catheters are inserted by means of stylets. The tubes are then clamped but so that no further flow of pus escapes and no air gains access to the pleural cavity. The bulbous ends of the catheters form an efficient barrier to the thoracic cavity. The wound is tightly packed with liquid paraffin gauze held by a many tailed bandage.

A special bed is prepared by fastening a sheet of canvas to the frame and making a hole 4 in. in diameter to one side of the midline and about 2 ft. from the head end. The child is placed upon this canvas sheet so that the incision is just over the hole. The lower catheter is passed through the hole and into a bottle containing a fluid antiseptic. The rule of draining from the lowest part of a cavity is thus complied with.

After an hour or two the tubes are unclamped and the pus is drained into the bottle. When the flow has

ceased the upper catheter is attached to a sterile funnel through which fresh Dakin's solution is run at a temperature of 105 degrees F. and from a height of 2 ft. above the wound. Cold solutions may cause shock. When the child is awake these injections are repeated every three hours. As a rule from 1/4 to 1 pt. is sufficient. Later when the patient's condition permits he can be rolled about during the irrigation so that the fluid will penetrate freely throughout the cavity. If the tubes become blocked they can be easily removed, cleaned and replaced.

The advantages of Dakin's solution are two fold. Local thickening and stiffening are prevented and the primary infection is sterilized so that secondary infection is prevented.

When the fever has subsided, sitting up and blowing exercises are begun. The child can soon be up.

The final stage of the treatment is in many ways the most difficult. The tubes must not be removed too soon nor be left in too long. The gradual diminution of the cavity can be measured by noting the decrease of the sucking in of air on inspiration through the wound when it is temporarily left open. However, this sign is not definite because in certain cases the cavity walls are too stiff. Irrigation is a much better way of measuring progress. After the removal of one tube the child is turned downward so that all of the pus can run out and then rolled back and the cavity filled with a measured amount of fluid. Of course the critical amount varies with the size of the child but when the cavity holds less than 10 c cm. one tube should usually be left out permanently and the wash out continued through the other tube. When the amount decreases to less than 5 c cm. the second tube may be removed and irrigation continued by means of a small soft catheter. When this can no longer be pushed into the chest the wound should be allowed to heal.

Three weeks is given as the average time required for complete healing in empyema. Other methods may shorten this period but quick successes are usually bought at the price of a secondary operation.

MORRIS A. SLOCUM M.D.

## ESOPHAGUS AND MEDIASTINUM

**Seiffert. Stenoses of the Esophagus.** (*Die Stenosen des Oesophagus*). *Zt. f. Hals-, Nas- u. Ohrheilk.* 1930 XXVII 203

For the treatment of cicatricial strictures of the esophagus early use of the bougie is advised. Seiffert begins it the second week after the corrosive injury. To find the way through the constriction in difficult cases he employs a steel wire 0.4 mm. thick to the end of which a metal ball about 1.5 mm. in diameter is soldered. The wire is drawn through a narrow metal tube with a lumen somewhat less than the diameter of the ball. The purpose of the tube is to prevent interference with the palpating sense by elimination of the rubbing of the wire. The wire is advanced by cautious palpation and the route thus won is maintained by pushing the tube after it.

The author has found that in cancer of the œsophagus endoscopic removal of the lesion is sometimes possible. In two cases he divided the œsophagus above the tumor with scissors and knife through the œsophagoscope tube after injecting novocain around the œsophagus and removed the diseased portion of the œsophagus bit by bit. A nasal tube was then introduced for a few days. He usually begins external irradiation with the roentgen rays. After about fourteen days of this treatment he gives intracorporeal or intratumoral treatment with radio active substances.

The article has a bibliography of thirty five pages.

A. BROWER (Z)

D. Istria A. The Roentgen Picture of Perforation of the Thoracic Œsophagus (L. d. m. r. d. lo. gica n. l. ndrom d. p. r. raz. e. d. l. i. e. s. o. f. o. t. a. ) *Rfo m med* 930 1 14

Perforation of the œsophagus may be caused by foreign bodies, trauma, or simple ulcer, diverticulum, chronic inflammation, or carcinoma of the œsophagus. The clinical and roentgen pictures depend on the organ into which the perforation occurs. If the perforation occurs into the mediastinum it may cause mediastinal hydropneumothorax or mediastinal pyopneumothorax. The roentgen picture is the same in the two conditions. The mediastinal shadow is broadened and the outlines of the heart are covered by it. There is a horizontal fluid level and the gas may extend up to beneath the muscles of the neck. The œsophagus is hidden within the mediastinal shadow.

If the œsophagus is adherent to other mediastinal organs the perforation will take place into the organs to which it adheres. Perforation into the vessels is soon followed by death. Perforation into the pericardium causes hydropneumopericardium or pyopneumopericardium with a collection of gas above a horizontal fluid level which is constantly shaken by the pulsations of the heart. The author reports a case in which the barium could be seen passing into the pericardium through the perforation.

When peribronchitis causes adhesions between the œsophagus and pleura perforation may occur into the free pleural cavity. When only a small amount of œsophageal contents passes there is time for the formation of a defense barrier and the pleural accumulations may become sacculated. In the absence of sacculization there is pyopneumothorax with a horizontal fluid level at the base. In a few instances the passage of the barium into the pleural cavity has been seen. Sacculated pyopneumothorax may be interlobar or mediastinal.

A number of cases of perforation into the trachea have been reported. Perforation into the respiratory tract is particularly apt to occur in cases of carcinoma of the œsophagus. In such cases the roentgen

diagnosis is made by demonstrating the passage of barium from the œsophagus into the respiratory tract. Care is necessary in the examination as death from suffocation may be caused by entrance of the bismuth into the bronchial tree. Only small amounts of bismuth should be used. In addition to the danger of suffocation the fistulae may quickly cause serious lung complications. Gangrene and abscess of the lung may be caused by food passing through the fistula into the lung and the œsophagus may perforate directly into the lung tissue. The roentgen picture of lung abscesses in such cases is the same as that of lung abscesses from any other cause.

AUDREY G. MORGAN (M.D.)

Ullgr  str  m P. Two Cases of Cardiospasm and Dilatation of the Œsophagus Which Were Operated upon Successfully by the Heyrovsky Technique (Zw. o. Faelle o. K. d. i. o. p. s. u. d. Œsophagus d. i. t. a. t. o. d. e. m. i. t. p. l. e. k. i. c. h. e. m. A. s. g. s. a. h. H. e. y. s. k. y. p. r. i. t. w. u. d. e. ) *t. f. ch. u. g. Sc. d.* 193 12v 345

The author reports two cases of cardiospasm in which œsophagostomy gave good results.

The first was that of a girl twenty years old who had experienced difficulty in swallowing ever since an attack of diphtheria at the age of thirteen years. In September 1925 Nystr  m of Upsala performed a subdiaphragmatic œsophagostomy. Roentgenographic examination nine and fourteen days after the operation still showed some retention of the opaque meal in the œsophagus. During the following year the patient gained 15 kgm. and experienced no difficulty in swallowing. Examination on four years after the operation showed that the passage through the lower part of the œsophagus and the cardia was about as wide as a lead pencil and had an S-shaped course through the diaphragmatic vault. The œsophagus was not dilated above the cardia. There was no retention of the meal taken.

The second case was that of a man aged thirty years who gave a history of difficulty in swallowing which had become worse despite prolonged treatment with sounds. Subdiaphragmatic œsophagostomy was performed in February 1929. Since then the patient has been free from symptoms. Roentgen examination shows the food passing down to the stomach without difficulty. In this case the prognosis must be considered fairly serious as the patient is in an advanced stage of pulmonary tuberculosis.

In conclusion the author reviews all cases of œsophagostomy hitherto reported. Of the twenty nine cases in which the transperitoneal route suggested by Heyrovsky was used the result was satisfactory in all whereas of the five cases in which the transpleural route suggested by Siebrich was employed death resulted in two.

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Chabrut R. *Hernial Contusion (Contribution à l'étude de la contusion herniaire)* Presse *et* d'Par 1930 *XXVIII* 12 3

Within eight months Chabrut operated on two cases of serious hernial contusion which had caused generalized peritonitis through rupture of the intestine. Hernial contusion has been observed only in inguinal hernia. A shock of slight intensity may cause serious anatomical disturbances. In some cases the intestine is crushed against the pubic bone in others it bursts. In some instances the shock causes a syndrome which resembles that of strangulation. Two illustrative cases seen by Verdet are reported. These traumatic strangulations should be operated upon. Reduction may be followed by generalized peritonitis. In two cases cited from the literature the signs of acute peritonitis appeared immediately after reduction. Even when spontaneous reduction occurs operation is urgent. Signs of peritonitis appeared in two of Chabrut's cases in which there were no unusual symptoms from the hernia.

When the classical signs of perforation are noted it is too late to operate. The only important signs of perforation are generalized contracture of the abdomen, the wooden abdomen, and the disappearance of prehepatic dullness. Among ten cases reported in the literature (two were Chabrut's) there were two recoveries. In both of the cases with recovery operation was performed in the second hour. One of the patients who recovered and who was seventy years old was operated upon by Chabrut.

Not only the intestine but also the omentum and the mesentery may be contused and torn and may bleed into interior of the abdomen or into the sac. In a case reported by Rochard there was a mesenteric hematoma and in a case reported by Cooper there was detachment of the mesentery with a large intra abdominal hemorrhage. Patel saw tearing of the mesenteric vessels. Sometimes the blood collected in the bottom of the sac is of peritoneal origin. This was true in Flaubert's case. Patel had a case in which there was a voluminous hematoma due to rupture of the cord.

In two cases the author used the median incision. He thinks now it would have been better to do a hernioplasty. He intends in the future to use an inguinal incision. *F. VCE*

Sorens A. L. *Exteriorization and Utilization of the Sac and Redundant Peritoneum in the Radical Treatment of Inguinal Hernia* *Am J S* 1930 *1* 130

Sorens describes a technique in which the sac and any bulging peritoneum are exteriorized and the sac

is used to reinforce the repaired area. The steps in the procedure are: (1) incision of the skin (2) exposure and incision of the aponeurosis of the external oblique muscle (3) splitting of the fibers of the internal oblique and transversalis muscles and exposure of the peritoneum (4) incision of the peritoneum (5) exposure of the internal ring and obliteration of any bulging of the peritoneum with exteriorization of the sac and redundant peritoneum and (6) fixation of the sac followed by repair of the split in the muscles and suturing of the fascia.

Variations in the technique according to cases points to be emphasized: the rationale of the procedure and the disposition of the sac and the cord are discussed.

By this technique atrophy of the testicle, hematoma, injury to the intestine, bladder, vas deferens and spermatic artery and recurrences of indirect hernia are completely prevented. The recurrence of direct hernia is rendered improbable because the blood, lymphatic and nerve supply of the region are not damaged and the region is reinforced by the presence of the exteriorized sac. Trauma, shock and other postoperative complications are reduced to the minimum because little damage is done to the tissues and a very short time is required for the operation. In the cases of children and young adults the operation has often been performed in less than ten minutes and when the diathermic scalpel was used even without ligation of a single blood vessel. The results in numerous cases including two cases of sliding hernia, one case of strangulated hernia and one case of hernia with an ectopic testicle were very satisfactory. *CARL R. STEINKE, M.D.*

Moore E. *Follow Up Studies of Patients Operated upon for Inguinal and Femoral Hernia During the Period from January 1, 1918 to December 31, 1927* (Nachuntersuchungen von Patienten die wegen Leisten- und Schenkelbruchs von 1918 bis 31. 12. 1927 operiert wurden) *N. sk. Mag. f. Læg. d. sk.* 1930 *XXI* 6 4

In the follow up examinations reported it was found that 2.21 per cent of the inguinal hernia had recurred. The incidence of recurrence of such hernia as given by others ranges from 1.5 to 6 per cent. Among the causes of recurrence are complications in the healing process, such as infection and the formation during the operation of hematomata which may hinder closure of the hernial opening and provide a favorable medium for the development of infection. Other important causes are insufficient isolation of the hernial sac and insufficient mobilization of the oblique muscles which result in such great tension when the muscles are sutured to the part ligament that the muscle fiber atrophy and

lose their supportive capacity. In some cases the cause is natural weakness of the musculature. Recurrence may be brought about also by vomiting or stubborn constipation after the operation.

The author's follow up studies showed that the method of Bassini is still the best procedure. However, because of its complicated nature, it should be done only under conditions of the strictest asepsis. Early operation is advisable. If possible, it should be done under local anesthesia. HAGEN (Z)

### GASTRO INTESTINAL TRACT

Deaver J B and Burden V C. Further Report on the Resection of the Anterior Half of the Pyloric Sphincter. *A S G 93* 1911 533

The anterior half of the pyloric sphincter can be removed surgically without opening into the lumen of either the stomach or the duodenum. The wound is closed in the direction of the incision. The authors have performed this operation in cases of peptic ulcer without organic pyloric obstruction, cases of pyloric spasm associated with other abdominal lesions, and cases of hyperchlorhydria without organic basis.

Uncontrolled gastric acidity is assumed to be a potent factor in the causation of peptic ulcer. Under normal conditions the stomach probably secretes very little acid in excess of the digestive requirements. Hypersecretion is caused by gastric irritation or by exaggeration through the vagus nerves of the psychic phase of secretion as the result of irritability of higher nerve centers. For a time, excessive secretion of acid will be controlled by regurgitation of duodenal contents into the stomach. In this process the function of the pyloric sphincter is important. It must be coordinated with the forces that bring about regurgitation; otherwise its failure to relax or to open widely will hinder or obstruct the entrance of neutralizing agents from the duodenum into the stomach. An acid solution stronger than 0.2 per cent is injurious to the mucous membranes of the stomach and duodenum, and if persistently applied will give rise to ulceration.

The hyperacidity and hypersecretion of peptic ulcers probably the result of exaggeration of the psychic phase of secretion associated with dysfunction of the pyloric sphincter interfering with duodenal regurgitation. The fundamental nervous disturbance in cases of peptic ulcer is often difficult or impossible to correct. The authors believe that the control mechanism of duodenal regurgitation can be restored to normal by removal of the anterior half of the pyloric sphincter. There is clinical and X-ray evidence to indicate that pyloric spasm is frequently associated with peptic ulcer.

In summarizing the authors say: A corrective procedure which removes the pyloric interference with duodenal regurgitation has been applied in clinical cases of peptic ulcer, pylorospasm, and hyperchlorhydria. In this procedure the anterior half of the pyloric sphincter is removed. In an experience with eighty-one cases over a period of

two and one-half years the results have been at least as satisfactory as from any operation we have used in similar cases. Insofar as symptomatic relief and postoperative X-ray findings are concerned, we have not yet encountered a return of ulceration, and of course the development of gastrojejunal ulcer is impossible. The removal of the anterior half of the pyloric sphincter is a much simpler operation than gastroenterostomy or resection of the stomach; the results are equally satisfactory, and postoperative complications and late sequelae are much less hazardous.

Faulk G B and Ivy A C. Experiment I. Gastric Ulcer. The Effect of the Consistency of the Diet on Healing. *J Ch Hist 193* 1 54

In experiments on rabbits the authors produced gastric ulcers by Ferguson's technique. They found that these simple ulcers healed within thirty days irrespective of the consistency of the diet. The simple ulcer with a silk suture in its base also healed if the rabbit was fed a soft diet but tended to become chronic if the rabbit was fed a rough diet. The authors concluded that the consistency of the diet influenced the healing of gastric ulcers if other factors tending to delay healing were operating simultaneously. LOUI P GAMBLE MD

Finney J M T and Hirschman E M Jr. The Results of Operations for Chronic Gastric and Duodenal Ulceration. A Statistical Study of Thirty Year Period. *J S G 93* 0

The authors preface their report with the statement that they have less confidence in surgical measures to effect a cure in cases of gastric and duodenal ulcer than in cases of other common non-cancerous surgical lesions of the abdomen.

The cases reviewed were 737 cases of gastric and duodenal ulcer operated upon in the period from 1900 to 1930 in the Johns Hopkins and Union Memorial Hospitals, Baltimore. The operations were performed by about 30 surgeons.

In 10 (1.4 per cent) of the cases perforation had occurred prior to the operation. In this group the operative mortality was 23.6 per cent, whereas in the cases without perforation it was 8.6 per cent. Fifty-six of the perforated ulcers were gastric, 53 were duodenal, and 1 was marginal. In the cases of perforated gastric ulcer the operative mortality was 26.8 per cent, and in the cases of perforated duodenal ulcer it was 18.9 per cent. Of the 34 patients treated for perforated ulcer who could be traced, 31 (91.1 per cent) were relieved by the operation. When miscellaneous procedures were used in the treatment of perforated ulcer the mortality was 29.8 per cent, and when gastroenterostomy was added it was 20 per cent. It was 2 per cent also when ectopic or sutures with pyloroplasty was done. Partial gastrectomy had a mortality of 11.1 per cent.

In 627 of the cases reviewed the ulcer was chronic. Of one hundred and sixty-eight of the chronic ulcer were gastric, 339 were duodenal, and 20 were mar-

ginal. The total mortality was 8.6 per cent. Of the 330 patients treated for chronic ulcer who were traced 83.9 per cent were benefited by the operation. In the 68 cases of chronic gastric ulcer the operative mortality was 9.7 per cent and the operation was beneficial in 80.8 per cent. In the 339 cases of chronic duodenal ulcer the operative mortality was 7.1 per cent and beneficial results were obtained in 86.4 per cent. In the 20 cases of postoperative marginal ulcer there were 4 deaths.

Seventeen of the cases of chronic gastric ulcer were treated by miscellaneous operations with a mortality of 29 per cent. In 90 cases gastro-enterostomy was done with a mortality of 3.3 per cent. In 102 cases pyloroplasty was done with a mortality of 8.8 per cent. Partial gastrectomy was done in 59 cases with a mortality of 15.3 per cent.

In the 339 cases of chronic duodenal ulcer there were 9 miscellaneous atypical operations with a mortality of 22.2 per cent. 170 gastro-enterostomies with a mortality of 10.6 per cent. 149 pyloroplasties with a mortality of 2.7 per cent and 11 partial gastrectomies with no mortality.

Of the total number of cases gastro-enterostomy was performed in 260 with a mortality of 8.1 per cent and beneficial results in 84.1 per cent and pyloroplasty was done in 251 with a mortality of 5 per cent and beneficial results in 85.8 per cent. Gastrectomy was done in 70 with a mortality of 1.9 per cent.

Of the cases of duodenal ulcer gastro-enterostomy was beneficial in 89.6 per cent and pyloroplasty in 86.8 per cent whereas of the cases of gastric ulcer gastro-enterostomy was beneficial in only 76.1 per cent and pyloroplasty was beneficial in 83.9 per cent.

In the period from 1925 to 1930 112 cases of chronic ulcer were operated upon at the Johns Hopkins Hospital with a mortality of 3.7 per cent. Thirty-seven of the lesions were gastric, 70 were duodenal and 5 were marginal. Gastro-enterostomy was done in 84 cases with a mortality of 2.4 per cent, pyloroplasty in 1 case with no mortality, partial gastrectomy in 7 cases with a mortality of 14.3 per cent and miscellaneous operations in 4 cases with no mortality. In the cases of marginal ulcer the operative mortality was 20 per cent. Sixty gastro-enterostomies were performed for duodenal ulcer with 1 death.

VERNE G. BURDEN, M.D.

#### Balfour D. C. The Results of Gastro-Enterostomy for Ulcer of the Duodenum and Stomach 11

5rg 1930 vol 558

The purpose of any operation for peptic ulcer is fourfold: (1) to relieve symptoms, (2) to protect against complications, (3) to protect against recurrence of ulceration and (4) to increase life expectancy. All of these purposes should be fulfilled to the maximum with minimal operative mortality, morbidity and removal of normal structures.

The author reviews 500 consecutive cases of duodenal ulcer in which gastro-enterostomy alone was done during the years 1918 and 1919. The

results are based on reports received after a minimum of five years after the operation.

In a careful survey of the series from the standpoint of relief of symptoms it was found that in 87 per cent of the cases the operation gave relief which had been unobtainable by any other treatment. Thirteen per cent of the patients failed to obtain permanent relief from the operation. Many of the causes of failure were not related to the stomach or duodenum. It was significant that in the group of cases with poor results the average age thirty-six and fifty-eight hundredths years was almost ten years less than the average age of the patients who obtained excellent results (forty-four and eight tenths years). This fact indicates that the younger the patient the less the prospect of cure.

In the total number of cases the mortality within five years after the operation from all causes was 4.28 per cent and the operative mortality 1.80 per cent.

In none of the cases did perforation of the duodenal ulcer or pyloric obstruction occur after the gastro-enterostomy. Forty-five of the 500 patients had 1 or more hæmorrhages after the operation but it is significant that only 1 of the 500 died from hæmorrhage. This study confirmed the fact that such hæmorrhages are often directly associated with unusual physical and mental strain, overloading of the stomach, the excessive use of tobacco or alcohol, gross dietetic indiscretions or severe focal infection.

In an investigation of the cause of subsequent deaths in the series no instance of carcinoma developing after the operation was found.

Balfour reviews also 100 cases in which gastro-enterostomy alone was done for gastric ulcer. He is convinced that this procedure is the operation of choice in cases in which the size or situation of the lesion or the age or condition of the patient would make removal of the lesion difficult and hazardous.

The operative mortality in the cases of gastric ulcer was 3 per cent. Five or more years after the operation 70 per cent of the patients were relieved. In 4 per cent the result was fair and in 17 per cent it was poor. Gastro-enterostomy affords almost complete protection against the complications of perforation and obstruction. The number of subsequent deaths from all causes in the cases of gastric ulcer during a period of five years after the operation was 1.

The outstanding fact demonstrated by the 100 cases reviewed is that an indirect operation alone can be depended upon to give a high percentage of good results in cases of gastric ulcer in which the removal of the lesion by any method would be difficult and partial gastrectomy would be associated with prohibitive operative risk and unwarranted sacrifice of the stomach.

To prevent misunderstanding of the purpose of this presentation the author states in conclusion that gastro-enterostomy alone has been used in selected cases of duodenal and gastric ulcer that is

in cases in which other types of operation did not appear to meet the requirements mentioned in the first paragraph of the article

Hosley J S The Immediate Mortality and Late Results of Operations for Gastric and Duodenal Ulcer *S g 193 c 545*

Gatwood T The Immediate Mortality and Late Results of Operations for Peptic Ulcer *S g 93 c 554*

Gibson J H The Immediate Mortality in Operations for Gastric and Duodenal Ulcer and Its Causes *S g 93 c 616*

HORSLEY reviews the results of operations for peptic ulcer of the stomach or duodenum performed in the period from July 1909 to July 1929 and 1 pyloroplasties done prior to July 1910

In 78 cases he performed a physiological pyloro-plasty, an operation in which physiological rest is given by division of the pyloric canal and sphincter the most active motor portion of the stomach and the mechanism of any ulcer that may be present in the first part of the duodenum. Of the patients subjected to this operation 45 per cent were rendered symptom free, 17 were greatly benefited, 12 per cent were slightly benefited, 36 per cent were not benefited, 4 per cent died and 4 per cent could not be traced. Horsley thinks that his physiological pyloroplasty is indicated in cases of single small well defined ulcer in the first part of the duodenum in which the lesion has not responded to medical treatment, there are no adhesions or adhesions only to the gall bladder and a cholecystectomy is done at the same time, also in cases in which it is desired to obtain an easier outlet for the stomach as after excision or cauterization of a gastric ulcer.

Of 57 patients subjected to gastroenterostomy 67 per cent had satisfactory result, 11 per cent were slightly benefited, 11 per cent were not benefited and 2 per cent died. In Horsley's opinion gastroenterostomy has a large field in the treatment of peptic ulcer, being indicated when the duodenal ulcer, large or tense adhesions are present, there is marked distension or inflammation and a recurrent ulcer develops after pyloroplasty.

Of 3 patients treated by partial gastrectomy 72 per cent had a satisfactory result, 7 per cent were slightly benefited, 3 per cent were not benefited, 6 per cent died and 3 per cent could not be traced.

GATWOOD discusses the immediate mortality and late results of operations performed for peptic ulcer in the Roosevelt Hospital, Chicago, in the period from 1905 to 1925.

Of 163 patients treated by gastroenterostomy 18 per cent died in the hospital and 8 per cent were cured or greatly benefited. Of the remaining 16 per cent 85 per cent died subsequently from a gastric condition and 48 per cent died subsequently from some other cause. While the majority of the last group were well as far as stomach symptoms were concerned they have not been included with those who were cured.

In cases of acute perforation which were operated upon within the first twelve hours there was a mortality of 5 per cent as compared with a total mortality of 20 per cent in cases of acute perforation. Recurrence demanding further surgery developed after all simple closures and the mortality did not seem to be increased by concomitant gastroenterostomy.

Gastric resection for gastric ulcer and gastrojejunal ulcer has been performed more frequently during the past five years. Of 30 cases in which it was done a gastrojejunal ulcer developed in 3.

A consideration of the deaths in these cases indicates that medical treatment should be given for at least a short period before operation in every instance.

GIBSON reports on 334 cases of gastric and duodenal ulcer in which operation was performed.

In some of the 67 cases of acute perforation simple closure was done and in others closure with gastrojejunostomy depending upon the patient's condition and the extent and duration of the peritoneal contamination. The mortality in cases of acute perforation was 26.8 per cent. In 9 cases the cause of death was peritonitis, in 4 cases a pathological chest condition and in 1 case each hemorrhage, embolism, empyema, local peritonitis with acute degeneration of the liver and an unrecorded condition. Ten of the patients who died were operated on within eighteen hours of the perforation. Those who recovered had a variety of complications including proctitis, phlebitis, pulmonary collapse, bronchiectasis, late vomiting, bronchopneumonia and duodenal fistula.

In the 67 cases without perforation there were 29 deaths, a mortality of 10.8 per cent. The causes of death were peritonitis, pneumonia, collapse of the lung, local peritonitis with lung abscess, pulmonary embolism, subphrenic abscess and empyema, hemorrhage, intestinal obstruction, shock, a sudden cardiac attack and postoperative delirium. The incidence of lung complications was over 5 per cent. In the cases of the patients who survived the complications were much the same as those developing in the fatal cases. ELI ETH CRASTON

Bloodgood J G The Ultimate Results and the Actual Function of Results After the Different Types of Operations for Gastric and Duodenal Ulcers for Gastric Cancer and for Duodenal Stomach After An Intestinal Fistula *S g 93 c 574*

St John F B A Follow Up Study of the Results in Surgical Therapy for Gastric and Duodenal Ulcer *S g 93 c 597*

Hartwell J A and Filter R K Peptic Ulcer Surgical Aspects Including End Results *S g 93 c 6*

BLOODGOOD urges the more frequent choice of the Billroth I anastomosis after resection of the stomach, pylorus or duodenum. He states that in resection for cancer a wide margin of uninvolved villi is unnecessary. For cases in which the Billroth II

operation must be performed. Bloodgood urges a long loop gastro enterostomy and recommends Bal four's modification of Polya's operation. He believes that in duodenal ulcer the Finney pyloroplasty with or without local excision of the ulcer is the operation of choice if local conditions allow it. When the Finney pyloroplasty is contra indicated a choice must be made between a short loop posterior gastro enterostomy and resection.

For cases of large chronic ulcers of the duodenum especially those adherent to the pancreas Bloodgood advises resection rather than posterior gastro enterostomy. In cases of perforated duodenal ulcer he rarely finds it necessary to do more than close the perforation and drain.

In conclusion Bloodgood states that a diagnosis of inoperable carcinoma should not be made from the findings of palpation and X ray examination alone. An exploratory laparotomy should usually be done unless there are skin metastases or fluid is present in the peritoneal cavity. Even under such circumstances operation is indicated if obstruction has occurred.

ST. JOHN reports the results of gastro enterostomy and partial gastrectomy performed in cases of gastric and duodenal ulcer in the Presbyterian Hospital, New York, in the period from 1916 to 1929, also the results of medical treatment in 92 cases.

In 119 cases in which gastro enterostomy was done the mortality was 15.1 per cent. Five and nine tenths per cent of the deaths were due to technical error and the others to pulmonary complications. In 76 cases treated by partial gastrectomy the mortality was 19.6 per cent and 15.8 per cent of the deaths were attributable to technical error. A marginal ulcer was present in 6.9 per cent of the cases in which gastro enterostomy was done and in 3.6 per cent of those treated by gastric resection.

Follow up records were made at intervals of six months after the operations. After gastro enterostomy the percentage of patients who were symptom free or had been benefited by the operation ranged from 86.6 to 98.4 and averaged 97.8. Of the patients treated by partial gastrectomy 94.4 per cent and of those treated conservatively 91.1 per cent were rendered symptom free or were benefited. The author emphasizes that in a comparison of surgical and medical results it must be borne in mind that in most clinics surgery is performed in cases of simple ulcer only after medical treatment has failed.

HARTWELL and FELTER report upon 152 surgically treated cases of peptic ulcer from the Department of Gastro Enterology of the Cornell Clinic. The operations were performed in 26 hospitals and by 46 surgeons. There were 117 cases of duodenal ulcer, 3 cases of both gastric and duodenal ulcer and 32 cases of gastric ulcer. The operations included gastro enterostomy, Polya resection, Billroth II resection with posterior gastro enterostomy, pyloroplasty alone, the Billroth I operation, sleeve resection and cautery excision combined with gastroduodenos-

tomy, pyloroplasty with wedge excision and simple suture. In 92 cases of duodenal ulcer gastro enterostomy had an operative mortality of 2.1 per cent. In 6 cases of gastric ulcer in which it was performed there were no deaths. In 11 cases of duodenal ulcer the operative mortality of Polya resection was 36 per cent and in 12 cases of gastric ulcer it was 17 per cent. In 5 cases of duodenal ulcer in which the Billroth II operation was done there was no operative mortality, whereas in 10 cases of gastric ulcer this operation had a mortality of 20 per cent. The primary operative mortality in the whole group of cases was 10.6 per cent. In the cases of duodenal ulcer it was 5.9 per cent and in the cases of gastric ulcer it was 2 per cent. The authors draw the following conclusions:

- 1 The efficiency and reliability of X ray examination in the diagnosis of peptic ulcer has been confirmed in this series of cases.

- 2 Gastro enterostomy was shown to be a very safe procedure, its mortality being 2.1 per cent when the operation was performed by many surgeons. It gave satisfactory results in 92 per cent of the cases.

- 3 The location of the gastroyjunostomy opening does not seem greatly to influence the clinical and mechanical results of the operation.

- 4 Polya resection gave uniformly good results in the small series of cases in which it was done but its mortality was high.

D. Aunoy R. and Zoeller A. Sarcoma of the Stomach. *Am J Surg* 1930 ix 444.

The authors report 4 cases of gastric sarcoma and review the literature on the condition.

Sarcoma of the stomach is a relatively rare neoplasm constituting only about 1 per cent of gastric malignancies and about 0.25 per cent of sarcomata in general.

It presents no pathognomonic features which will allow diagnosis by clinical or laboratory tests. The diagnosis is established only by histological examination of a portion of the tumor or one of its metastases. Clinically and by X ray examination gastric sarcoma is most frequently diagnosed as carcinoma or chronic ulcer. It does not appear possible to make a differential diagnosis before operation.

While age is not of importance in the differential diagnosis, gastric sarcoma tends to occur in younger persons than gastric carcinoma, the average age for the onset of its symptoms being forty one and six tenths years whereas the average age of onset of the symptoms of gastric carcinoma is sixty one and two tenths years. The average age at which gastric lymphosarcoma occurs is thirty six years.

The prognosis of gastric sarcoma is poor but is frequently said to be better than that of carcinoma of the same region because the sarcoma does not metastasize so readily or at such an early stage in its development as carcinoma.

Trauma, a pre existing benign neoplasm and chronic ulcer have been suggested as possible etiological factors.



Lymphosarcomata of the stomach are usually of the infiltrating variety. They occur in younger persons than the spindle celled tumors and are less frequently pedunculated. Spindle celled sarcomata offer a much better prognosis as they metastasize more slowly and are more readily extirpated.

In the year 1929 335 cases of sarcoma of the stomach including the 4 reported by the authors in this article were recorded in medical literature.

JACOB M. MORRIS, M.D.

David V. G. and Leonard M. Spinal Anesthesia in the Treatment of Paralytic Ileus  
Surg. 930 c 7

The authors conclude that the use of sphincter anesthesia to paralyze the inhibitory nerves of the intestines in the treatment of paralytic ileus from peritonitis may be of value in local peritonitis and the early stages of general peritonitis but in severe and extensive peritonitis little or no aid in the reestablishment of intestinal movements is to be expected from it.

S. MUEL KAHN, M.D.

Judd E. S. and Hazeltine M. E. The Results of Operations for Fixation of Ulcer of the Duodenum  
Surg. 93 563

The authors report on the local operations which have been performed for duodenal ulcer at the Mayo Clinic. The first local operation in the Clinic for ulcer of the duodenum was a Heinecke-Nikulicz operation performed in 1896 and the first operation for excision of ulcer of the duodenum as done in 1909.

Gastroenterostomy will probably remain the popular operation for duodenal ulcer. It is satisfactory in all cases except in those in which secondary ulcers develop and those in which hemorrhage occurs and the bleeding may continue.

The operation of excision was developed to prevent jejunal ulcer and reduce the incidence of bleeding after gastroenterostomy for hemorrhagic ulcer.

For many years the local operation consisted in excision of the ulcer or destruction of the ulcer by cautery with simple closure of the area on the duodenum. Of late it has been thought that removal of the anterior part of the pyloric sphincter in addition to excision of the ulcer results in more complete relief of the symptom. With this removal of muscle everything is accomplished that gastroenterostomy can accomplish and in addition the ulcer is removed.

In cases in which multiple ulcers are encountered and the removal of all of them is impossible it is probably best to remove the anterior ulcer close to the opening in the duodenum and then complete the operation with gastroenterostomy.

The local operation limits it to cases in which the duodenum is fairly mobile. However with increasing experience these cases the surgeon realizes that it is not difficult to mobilize a duodenum which is fairly well fixed and this should be done in cases in which excision of the ulcer is definitely indicated.

Gastroenterostomy is particularly satisfactory for older patients especially if obstructive symptoms have developed. It is less satisfactory in young patients.

A study of the immediate results of the local operation shows that it can be done with very little risk. In the 1363 cases covered by this report the mortality was 0.44 per cent.

The ultimate results in this group of cases are practically the same as the ultimate results obtained by gastroenterostomy. 90 per cent of the patients from whom detailed reports have been received obtained satisfactory relief.

The local operation can be performed in about 50 per cent of cases of duodenal ulcer and in these it will probably give better immediate and ultimate results than gastroenterostomy.

Gershon Cohen, J. The Diagnosis of Early Ileocecal Tuberculosis  
J. M. R. 12 93  
1 367

The pioneer work of Stierlin and Prien on the roentgen diagnosis of ileocecal tuberculosis was little heeded until the work of Brox and Sampson in 1915. Brox and Sampson placed great reliance on the opaque meal followed by serial roentgenoscopic and roentgenographic examinations made at regular intervals from the seventh to the tenth hour after the ingestion of the meal. The findings which they regard of chief importance are filling defects in the ascending colon which appear in all or nearly all of the serial roentgenograms and are due to spasm, irritation and hypermotility caused by the opaque medium in its passage through the affected segments. They consider the barium enema of much less value than the barium meal because spasm of the colon following an enema is not necessarily indicative of pathological changes. However they regard spasm limited to the cecum after a barium enema as significant.

Gershon Cohen calls attention to the fact that in the cases reported by Brox and Sampson in which positive evidence of tuberculosis of the colon was found with the use of the barium meal such evidence was usually found also with the use of the barium enema. He therefore concludes that Brox and Sampson are unwarrantedly prejudiced against the enema. He believes that examination with the enema has many advantages: that it can be more readily performed at necessitates bringing the patient to the roentgen department only once; it yields all the information yielded by the barium meal and it frequently eliminates the difficulties experienced in the interpretation of defects in serial roentgenograms which are not true filling defects.

Gershon Cohen reports the findings in 138 cases of pulmonary tuberculosis in which a double contrast roentgen study of the intestines was made at the Eagleville Sanatorium, Eagleville, Pennsylvania. In the technique employed the opaque medium was injected into the colon under fluoroscopic control, special attention being paid to spasm and irritability.

of the colon particularly on the right side mass peristalsis anastalsis the competency of the ileocecal valve the outline of the colon ileocecal valve and terminal ileum and the presence or absence of pain After the fluoroscopic examination a roentgenographic examination was made The patient was then permitted to evacuate the opaque enema Following the evacuation another roentgenoscopic examination was carried out to determine the distribution of the residual contents and the occurrence or non occurrence of mass peristalsis either spontaneously or after palpation Air was then introduced into the colon by means of a Politzer bag attached to a rubber tube 18 in long The insufflation was done under fluoroscopic control and was stopped when the colon was filled When it was done slowly no pain was experienced On its completion another roentgenoscopic examination was made and followed by roentgenographic studies with the patient in the supine position and with the roentgen rays directed vertically

In 41 of the cases reviewed positive evidence of ileocecal tuberculosis was obtained Of 31 cases in which routine roentgenographic studies of the entire gastro intestinal tract by Brown Sampson technique were made in addition to the double contrast procedure ileocecal tuberculosis was found by the former technique in only 16 and in all of this group the microscopic examination of the faeces was positive Gershon Cohen therefore concludes that the enema studies give a better concept of the extent and intensity of the infection than barium meal studies

The double contrast procedure is of great value in revealing irregularities in the lumen of the gut It serves as a check on the findings of the single contrast enema Because of the marked contrast obtained with the double contrast technique the author hoped that he might use a contrast substance which would adhere to an ulcerated surface and not to the normal bowel and thereby reveal early ulceration While this hope was not realized the double contrast films disclose many early signs of ileocecal tuberculosis which cannot be detected in the single contrast films and are not even suggested in serial roentgenograms made after a barium meal Their use renders it unnecessary to depend upon the demonstration of filling defects in the affected segments of the colon due to splitting of the barium meal column by those segments The findings following the barium enema its evacuation and the insufflation of air serve to check each other

In the adult the most common sites of tuberculosis in the intestinal tract are in order of decreasing frequency of involvement the terminal ileum the cecum the jejunum and the transverse and descending colon The author believes that the tubercles first develop in Peyer's patches or the lymphoid collections in the cecum as it is here that ingested material is first delayed after rapidly passing through the jejunum

In the first stage of the infection necrosis usually occurs The ulcers may become confluent The tone

and peristalsis of the affected segment are increased In the second or moderately advanced stage there is more extensive coalescence of the ulcers with deep extension to the submucosa or muscularis Lymphatic extension is marked and nodules form in great numbers around the periphery of the lesions In the third or advanced stage the involvement extends over wide areas from the ileocecal region into the jejunum and the distal portion of the colon Extensive areas of slough and even false diphtheritic membranes are formed The walls of the bowel become smooth and rigid and the lumen becomes uniformly contracted The roentgen findings in the 3 stages may be described as follows

Stage 1 Long delayed temporary tonic spasms or intermittent and frequent spastic contractions occur The spasms may be of short duration but the periods of relaxation followed by complete filling are often shorter Hyperperistalsis and mass peristalsis are noted The opaque mass may pass rapidly through the colon for a distance of 12 in before stopping Mass hyperperistalsis is visible not only during the injection of the opaque enema but also after evacuation of the enema and after the insufflation of air If it is missed during the opaque enema study its presence is indicated by the complete evacuation of the contrast material from the diseased segment when the double contrast enema studies are made Anastalsis—refilling of the emptied segment by reverse flow of the opaque contents from the next distal segment when the injection of the opaque material is discontinued—is frequently observed Hypersecretion is a common finding but can be detected only in the double contrast film It is due probably to an inflammatory exudation It is evidenced by uneven adherence of the barium suspension to the colonic mucosa After evacuation of the enema the residual coating of barium which usually clings to the normal mucosa seems to have been washed away by the excess products of evaduation and secretion in the diseased areas Therefore in the double contrast film the normal mucosa appears to have retained its smooth uniform coating of barium whereas the inflamed areas appear to have no coating Pain and tenderness are almost always elicited by palpation over the cecum Incompetency of the ileocecal valve is usually noted

Stage 2 In this stage the deformities become more marked in the regions of the ileum and cecum close to the ileocecal valve and less marked toward the proximal portion of the ileum The margins of the cecum often have a crenated or fibrillar outline due to the spastic contraction which is associated with ulceration Occasionally the lumen is irregularly shortened or contracted The irregularities are permanent and are visible in all of the films After evacuation of the contrast enema the double contrast film shows irregularly outlined pools of residual contents between the distorted contracted areas of the involved colon or in the crater or under the evacuated portions of the ulcers Irregularities are seen also in the ileum The normal roentgen appear

ance of the end of the ileum in a plane is that of a cone shaped or triangular segment with the apex invaginating the cæcum. In moderately advanced ileocecal tuberculosis with ulceration on the frenula around the orifice and on the wall of the ileum just proximal to the orifice the cone or triangle is inverted. This is Fleischner's sign.

Stage 3. In the third or advanced stage the cæcum becomes almost obliterated by fibrous contraction. Frequently the barium will not enter the contracted portion but following the insufflation of air the stenosed portion can be visualized easily. In all of the films the lumen of the ascending colon is markedly narrowed. As a rule the narrowing is greatest in the cæcum and decreases toward the hepatic flexure.

ALTON OCHSNER, M.D.

Soupaault, R. and Seltié, G. Pelvic Appendicitis (L'appendicite pelvée). *Revue de Chirurgie*, 1933, 77.

Pelvic appendicitis may occur at any age but is most frequent in the child. The appendix is found in the pelvis by anastomosis in one third of cases and by surgeons in from 18 to 20 per cent. Laparoscopic appendicitis is more frequent than high pelvic appendicitis. The inflamed appendix lies entirely within the lesser pelvis in direct contact with the bladder and rectum. Pelvic vesical or rectal symptoms may occur very early. Rupture of abscesses into the abdomen is to be feared. In high pelvic appendicitis the danger of peritoneal diffusion is especially great. The appendix is attached in front of the promontory at the junction of the pelvis and abdomen. To it adhere epiploic fringes and loops of small intestine, fragile surroundings for cysting the infection. The focus is difficult to discover and if operation is delayed peritonitis or occlusion will develop.

Dysuria and pain in the cul-de-sac of Douglas in a patient who has shown febrile abdominal symptoms and in whom abdominal palpation gives negative results constitute the key to the diagnosis of low pelvic appendicitis. If operation is not done resolution may take place or there may be diffusion or suppuration. The abscess may open into the great peritoneal cavity through the skin or into the rectum, bladder or vagina.

High pelvic appendicitis is rarely diagnosed. In some cases there appears to be a simple gastric disturbance, while in others the symptoms suggest the existence of occlusion with a subacute course. Persistent or aggravation of symptoms lead to operation. An illustrative case is reported. The authors discuss the diagnosis of the attack itself and the pelvic abscess in the child, the man and the non-pregnant and pregnant woman.

The pelvic complications of abdominal appendicitis are early and late pelvic abscesses. In all cases in which the appendicitis is accompanied by a thick peritoneal effusion a drain should be placed in the cul-de-sac of Douglas and the drainage should be continued for some time. The caliber and then the length of the drain should be gradually diminished.

In case of pelvic appendicitis seen within forty-eight hours immediate operation should be performed. If the course is favorable when the patient is seen more than forty-eight hours after the attack the surgeon should wait while ordering complete rest, the application of ice to the abdomen, liquid diet, small warm enemas of a 10 to 20 per cent salt solution and opiates. In suppurative appendicitis the cul-de-sac of Douglas should be drained whatever the location of the appendix. The abscess may be approached by the high route transperitoneally or by the low route through the vagina or rectum. Occlusion results from pelvic abscess may be treated by freeing the intestinal loops in the infected focus or by simple lateral fistulization of the dilated small intestine. Vesical or rectal fistula of the appendix itself or of an adjacent intestinal segment must be operated upon after the inflammatory symptoms have decreased. P. C.

Deaver, J. B. An Opinion on the Persistent High Operative Mortality in Acute Appendicitis. *Surgical Observer*, 1933, 159.

In Deaver's opinion the reasons why patients with acute appendicitis are frequently not seen by the surgeon until after the occurrence of perforation of the appendix or the development of gangrene or extensive suppuration are that they have been purged, they did not call the physician early enough or if the physician was called in time he failed to recognize the condition or tried expectant treatment and deferred operation. The operative mortality in acute appendicitis is high because the time for operation is not well chosen or because if opportunistically timed the operation was incomplete because of the surgeon's poor judgment or his lack of experience in the treatment of appendicitis or both.

In cases in which peritonitis has developed Deaver has found auscultation of the abdomen a very valuable means of detecting the lesion. He states that the stormy, the turbulent and the silent belly are significant of stages of peritonitis that they indicate whether it is circumscribing, circumscribed, diffusing or diffused. In the early stages of peritoneal irritation very delicate palpation will often reveal the presence of serous fluid. It is important to determine the position of the appendix. As a rule the appendix is located at the site of the most marked tenderness and rigidity. A deep pelvic position will require deep pressure to elicit tenderness and often lead to a mistaken diagnosis of diverticulitis of the sigmoid.

The crux of the problem is diagnosis. If the diagnosis is properly made it means operation. The most important considerations are the choice of the time for the operation and the operative technique. These are determined very largely by circumstances and the surgical judgment that comes only with experience. Therefore it is difficult to formulate guiding principles. In acute appendicitis operation should be done before the onset of peritonitis if possible. The early case of acute appendicitis

demands immediate operation. The indication for drainage and often the outcome of treatment depend upon the character of the exudate as revealed by a smear taken from the operative field, the surrounding area and distal points and upon the appearance of the peritoneum at and around the site of the lesion. When the pathological reports are negative as regards infection Deaver drains only in the presence of a green peritoneum and a subperitoneal exudate. In such cases drainage is necessary since occasionally the exudate does not resolve but forms an abscess.

Deaver does not believe that acute appendicitis always necessitates an immediate emergency operation. He emphasizes that surgical judgment is required to decide when to operate and when not to operate and that the decision not to operate often requires the greater deliberation. Chill, abatement of the pain and a drop in the temperature are three signals calling for immediate operation.

The time at which operation should be done after peritonitis has developed depends upon the type of the peritonitis and the patient's condition. In practically all cases of circumscribed peritonitis operation can be done safely at once if the proper technique is used. In circumscribed peritonitis with abscess immediate operation with a proper technique is safe unless there are forbidding systemic or other conditions which in these days of spinal anesthesia are not numerous. The technique in circumscribed peritonitis is described in detail.

In circumscribing peritonitis that is cases in which the infection shows a tendency to become localized Deaver employs anatomical and physiological rest, the Fowler-Murphy-Ochsner treatment which is known in his clinic as "regulation treatment." With few exceptions the circumscribing peritonitis becomes circumscribed under this treatment and permits operation with little risk of death. When there has been a flare up and the circumscribing peritonitis has advanced to a diffusing peritonitis Deaver prescribes anatomical and physiological rest to allow the peritonitis to localize.

In the presence of an abscess in the region of the ileocecal junction the terminal ileum is often infiltrated, thickened and stiff and forms a part of the abscess cavity. Under such conditions Deaver evacuates the abscess, removes the appendix, establishes drainage and then does an ileocecostomy or an ileocolostomy to prevent postoperative obstruction and insure a smooth convalescence. When an abscess is in the immediate neighborhood of the cecum and especially near the terminal ileum and when the lesion is not an abscess but a definitely inflammatory area that would favor adhesions of that portion of the ileum which is so prone to fall in contact with the abscess and thus cause obstruction, he uses a cofferdam of rubber tissue so that when he has placed it and lightly packed the cavity within the dam will be held up out of harm's way.

Diffusing peritonitis is a more serious condition. In this type the patient appears very sick, the pain

is very acute and the tenderness and rigidity are distributed over a larger area than in circumscribed peritonitis. Peristalsis is feeble or absent over the area of peritonitis but exaggerated over the surrounding region. In such cases Deaver postpones operation until the peritoneal inflammation has subsided or has been controlled to the point of safe surgery by anatomical and physiological rest.

In diffused peritonitis postponement of operation is usually best. However if the case is seen very early when the belly walls are still rigid, operation by an experienced surgeon promises most.

A collection of pus in the pelvis or either iliac region can be evacuated by an extraperitoneal approach in the pelvis by vaginal or rectal incision and above the pubis by a low midline incision after emptying of the bladder. A subdiaphragmatic collection may be evacuated by removing the greater part of the tenth rib. A subhepatic collection may be drained by an incision through the loin if it has extended well down into the renal well; otherwise the incision should be through the anterior abdominal wall. At operation Deaver inspects the external paracolic furrow for pus. If pus is present the wound is enlarged upward and the subdiaphragmatic and subhepatic spaces are explored. If pus is found in these regions drainage is established by means of a rubber tube or by a cigarette drain carrying a central rubber tube. Next the pelvis is explored and drained if pus is found. In addition a narrow eight layer piece of gauze long enough to reach the inner boundary of the peritoneal wound is placed between the parietal and the visceral peritoneum. The paracolic groove is loosely packed with moist gauze and interrupted sutures of silk or silk worm gut preferably the former are carried through the entire thickness of the edges of the wound and tied loosely to prevent evagination. This procedure leaves an open wound and permits free drainage. The purpose of the long piece of gauze between the layers of peritoneum is to excite peritoneal activity and exclusion of the general peritoneal cavity. Silk sutures are more stable than sutures of silk worm gut because they do not break or become untied. When pockets of pus are found between coils of bowel they are emptied and drained by strips of rubber dam or soft rubber tubes. In nearly all cases with pus pockets postoperative hernia develops.

The time for the removal of the drain and gauze should be decided by the surgeon. It is better to leave drains and gauze in place too long than to take them out too early.

The only cases in which Deaver does not remove the appendix primarily are those with a circumscribed abscess of several days standing in which there is no evidence of surrounding peritonitis and the appendix is not seen or felt. However in such cases he performs appendectomy a short time after wound healing is complete. In all others he performs a primary appendectomy since in many instances the removal of the appendix reveals an abscess which if not drained would lead to a serious if not

ance of the end of the ileum in a plane is that of a cone shaped or triangular segment with the apex invaginating the cæcum. In moderately advanced ileocecal tuberculosis with ulceration on the frenula around the orifice and on the walls of the ileum just proximal to the orifice the cone or triangle is inverted. This is Heischner's sign.

Stage 3. In the third or advanced stage the cæcum becomes almost obliterated by fibrous contraction. Frequently the barium will not enter the contracted portion, but following the insufflation of air the stenosed portion can be visualized easily. In all of the films the lumen of the ascending colon is markedly narrowed. As a rule the narrowing is greatest in the cæcum and decreases toward the hepatic flexure.

ALF. OGDEN, M.D.

Soupauf, R. and S. H. G. P. Ile Appendicitis  
(I. Pr. d. cl. p.) J. Acad. h. I. 93  
1 77

Pelvic appendicitis may occur at any age but is most frequent in the child. The appendix is found in the pelvis by anatomists in one third of cases and by surgeons in from 18 to 20 per cent. Low pelvic appendicitis is more frequent than high pelvic appendicitis. The inflamed appendix is entirely within the lesser pelvis in direct contact with the bladder and rectum. Pelvic vesical and rectal symptoms may occur very early. Eruption of abscesses into the abdomen is to be feared. In high pelvic appendicitis the danger of peritonitis is diffusion, especially gastric. The appendix is attached in front to the promontory at the junction of the pelvis and bladder. It adheres to pleural ligaments and loops of small intestine, fragile surroundings for encysting the infection. This focus is difficult to discover and if operation is delayed peritonitis or occlusion will develop.

Dysuria and pain in the cul de sac of Douglas in a patient who has shown febrile abdominal symptoms and in whom abdominal palpation gives negative results constitute the key to the diagnosis of low pelvic appendicitis. If operation is not done resolution may take place or there may be diffusion and suppuration. The abscess may open into the greater peritoneal cavity through the skin or into the rectum, bladder or vagina.

High pelvic appendicitis is rarely diagnosed. In some cases there appears to be simple gastric disturbance with fever whereas in others the symptoms are suggestive of occlusion with a subacute course. Persistence or aggravation of symptoms leads to operation. An illustrative case is reported. The authors discuss the diagnosis of the attack itself and the pelvic abscess in the child, the man and the non-pregnant and pregnant woman.

The pelvic complications of a foetal appendicitis are early and late pelvic abscess. In all cases in which the appendicitis is accompanied by a thick peritoneal effusion a drain should be placed in the cul de sac of Douglas and the drainage should be continued for some time. The caliber and then the length of the drain should be gradually diminished.

In cases of pelvic appendicitis seen within forty-eight hours immediate operation should be performed. If the course is favorable when the patient is seen more than forty-eight hours after the attack the surgeon should wait while ordering complete rest, the application of ice to the abdomen, liquid diet, small warm enemas of a 10 to 20 per cent salt solution and opiates. In suppurative appendicitis the cul de sac of Douglas should be drained whatever the location of the appendix. The abscess may be approached by the high route transperitoneally or by the low route through the vagina or rectum. Occlusion resulting from pelvic abscess may be treated by freeing the intestinal loops in the infected focus or by simple lateral fistulization of the dilated small intestine. Vesical or enterovesical fistula of the appendix itself or of an adjacent intestinal segment must be operated upon after the inflammatory symptoms have decreased. Price.

Deaver, J. B. An Opinion on the Present High Operative Mortality in Acute Appendicitis  
S. G. Cynec. & Obs. 1931 59

In Deaver's opinion the reasons why patients with acute appendicitis are frequently not seen by the surgeon until after the occurrence of perforation of the appendix or the development of gangrene or extensive suppuration are that they have been purged, they did not call the physician early enough, or if the physician was called in time he failed to recognize the condition or tried expectant treatment and deferred operation. The operative mortality in acute appendicitis is high because the time for operation is not well chosen or because if opportunely timed the operation was incomplete because of the surgeon's poor judgment or his lack of experience in the treatment of appendicitis or both.

In cases in which peritonitis has developed Deaver has found auscultation of the abdomen a very valuable means of detecting the lesion. He states that the stormy and the turbulent and the silent belly are significant of stages of peritonitis that is they indicate whether it is circumscribed, circumscribed diffusion or diffused. In the early stages of peritoneal irritation very delicate palpation will often reveal the presence of serous fluid. It is important to determine the position of the appendix. As a rule the appendix is located at the site of the most marked tenderness and rigidity. A deep palpation will require deep pressure to elicit tenderness and often lead to a mistaken diagnosis of diverticulitis of the sigmoid.

The crux of the problem is diagnosis. If the diagnosis is properly made it means operation. The next important considerations are the choice of the time for the operation and the operative technique. These are determined very largely by circumstances and the surgical judgment that comes only with experience. Therefore it is difficult to formulate rigid guiding principles. In acute appendicitis operation should be done before the onset of peritonitis if possible. The early case of acute appendicitis

faeces reach the distal part of the colon or the rectum in normal time it is reasonable to conclude that the underlying pathological condition is in the distal part of the large bowel. However the pathological anatomy in such cases differs from that in Hirschsprung's disease. The rectum may be unduly dilated but the dilatation is not accompanied by hypertrophy of the muscular coat indeed in long standing cases the muscular coat is atrophied. The underlying factor is probably a gradual rising of the threshold of the rectal sensory nerves to the presence of faeces in the ampulla due to long continued deliberate neglect to answer the call to defaecation. Rankin and Learmonth believe that the operation should be considered in such cases on the hypothesis that interruption of the inhibitory nerves to the rectum may permit a readier response of the rectal musculature to such reflex stimuli as reach the intramural plexuses.

The postoperative course of patients suffering from Hirschsprung's disease will be different from that of patients suffering from rectal constipation. This must be emphasized. More immediate benefit is to be expected in the former for after the operation the hypertrophied musculature of the colon is immediately available for effective peristalsis. It cannot be expected that completely normal defaecation will be restored at once for time will be required for partial or complete readjustment of the organic changes in the colon and rectum to the altered neuromuscular control. However judging from the case herewith reported satisfactory defaecation begins sufficiently soon to obviate a long course of medical treatment.

In cases of rectal obstipation not only is hypertrophy of the muscular coat of the bowel absent but also the long continued distention of the rectum leads to atony and even atrophy of its musculature. All that can be hoped for is that the rectum will be placed under the most favorable conditions for function. A long course of after treatment will be necessary to re-educate what remains of the rectal musculature so that it will contract on stimulation.

#### LIVER GALL BLADDER PANCREAS AND SPLEEN

Miller R H. Acute Cholecystitis. *Ann Surg* 1930 xci 644

The author believes that acute surgical cholecystitis with all of the symptoms and signs of acute inflammation distention and oedema of the gall bladder rarely occurs in the absence of stones.

He states that the thickened gall bladder cannot distend rapidly following obstruction of the cystic duct. Therefore infection is able to penetrate its wall and produce a contiguous abscess. The rapid distention of a thin walled gall bladder causes excruciating pain which is not easily controlled by morphine whereas the slow distention of the thick walled gall bladder causes pain that as a rule can be controlled without difficulty.

It has been taught that operation should be delayed until the acute infection has subsided in order that the patient may be in better condition to withstand it and there will be a greater chance of performing cholecystectomy instead of cholecystostomy. However in 2 of the author's cases perforation occurred while subsidence of the infection was awaited. Miller therefore questions the advisability of postponing operation in all cases.

When acute infection of the gall bladder is treated conservatively there are 3 possibilities (1) subsidence of the infection (2) perforation with the formation of a local abscess and (3) perforation with the development of general peritonitis. Miller questions whether our ability to predict the outcome is sufficient to warrant delay of operation.

The records of 200 consecutive cases which were operated upon for acute cholecystitis state definitely that stones were present in 160. In the records of 40 cases (20 per cent) no mention of the presence or absence of stones is made. Miller believes that there were not even as many as 40 cases without stones that in some of the records in which stones were not mentioned the surgeon merely neglected to record them. In the records of 74 cases (37 per cent) it is stated that there were no adhesions about the gall bladder. In the records of 19 (9.5 per cent) the presence or absence of adhesions is not stated. The fact that there was no walling off in from one quarter to one half of the cases shows the danger of spreading infection in case of perforation.

Twenty seven (13.5 per cent) of the patients died. In the fatal cases the average length of time from the onset of the condition to the operation was fifteen days whereas in the cases with recovery it was eight and three tenths days. Of the fatal cases local perforation occurred in 8 but general peritonitis occurred in none. Cholecystectomy was done in 14 of the fatal cases and cholecystostomy in 13. Of the patients who recovered 75 per cent were treated by cholecystectomy.

The author concludes that in the cases of patients who are in poor condition but whose symptoms are not very acute operation may be delayed for twelve hours to allow for pre-operative preparation but that in cases with persistent fever tenderness and spasm and especially cases with severe pain which is not easily controlled it should be undertaken without delay. STANLEY H. MENTZER M.D.

Jones N W and Palmer D L. Observations upon Chronic Cholecystitis with Special Reference to Motor Disturbances of the Gastro Intestinal Tract in Relation to Pre Operative and Post operative Symptoms. *Am J M Sc* 1930 clxxx 531

The authors believe that in the roentgenological diagnosis of gall bladder disease too much reliance has been placed on the results of the use of dyes. The procedure which they have found most satisfactory is the George and Leonard direct method supplemented if necessary by the Graham Cole

test. They state that a factor overlooked when the method of George and Leonard is discarded is that alteration in the chemistry of the gall bladder wall and possibly in the bile occurs with disease and may have something to do with the production of shadows in the direct roentgenograms.

In 4820 cases in which an examination for gall bladder disease was made the clinical diagnosis was based on the following evidence:

|                                       |     |     |
|---------------------------------------|-----|-----|
| A. Direct evidence                    |     |     |
| 1. Shadow                             | 23  | 6.8 |
| 2. + shadow                           | 85  | 4.3 |
| 3. + + + had w                        | 69  | 3.7 |
| 4. Shadow and u.s. sat. f. try        | 4   | 9.1 |
| (a) Before u.s. f. dy                 | 28  | 6   |
| (b) After oral e. of dye              | 3   | 0.6 |
| (c) After intra u.s. f. dy            | 3   | 0.4 |
| 5. Direct shadow widened by           |     |     |
| (a) Oral e. of dye                    | 47  |     |
| (b) Intra u.s. f. dy                  | 0   |     |
| B. Indirect evidence                  |     |     |
| 1. Mild turbidities                   | 438 | 9.4 |
| 2. Absence of m. t. r. dist. b. n. s. | 2   | 4.6 |
| 3. Deformity oftrum of duodenum       |     |     |
| (a) Blands                            | 00  | 2.0 |
| (b) W. r. s.                          | 6   | 3.0 |

Chemical analyses of normal and pathological gall bladders and their contents showed that as the calcium content increased the shadow produced by the gall bladder on the film became denser. The calcium content varied from 0.02 per cent CaO dry weight in presumably normal gall bladders which cast no shadow to an average of 0.16 per cent dry weight in gall bladders which cast a dense shadow on the direct film.

The authors believe that the diagnosis of chronic cholecystitis does not necessarily demand surgical treatment. Of 1332 patients with this condition only 42 per cent underwent operation. The remaining 58 per cent were given relief by dietetic and other non-surgical measures.

Of the patients operated upon for mild chronic cholecystitis only 22 per cent were relieved of their symptoms within the period of surgical convalescence. Seventy-eight per cent continued to have distress of variable intensity over periods of time ranging from a month to more than a year. The chief cause of the failure of operation to relieve the symptoms was persistence of motor disturbances in the gastrointestinal tract.

In conclusion the authors state that while the technique for visualization of the gall bladder by the direct method is more arduous, the fact that it leads to a correct diagnosis in 96 per cent of the cases justifies the added effort necessary for its use.

NORMAN G. PARRY, M.D.

Lahy, F. H. External and Internal Biliary Fistulae Following Cholecystectomy. In 51, 193, 1: 649.

The author previously reported the transplantation of complete external biliary fistulae. In this

article he reports eight others. Six of the patients are free from symptoms, one had a recurrence of the external fistula, one has had frequent attacks of intermittent biliary obstruction, and two died from the operation.

The most important surgical principle in this operation is the preservation of adequate vascularization. This is attained by leaving the fistulous tract attached to the undersurface of the liver. The tract is coiled out from the abdominal wall down to its attachment to the liver. A short section of rubber catheter is inserted into the fistula and anastomosis effected between the stomach and duodenum or jejunum. If the anastomosis is made to the stomach, the latter is drawn through an incision in the omentum which has been reflected onto the hepatogastric ligament. The anastomosis is therefore essentially extraperitoneal. An incision is made into the stomach and through a counter incision the end of the fistula with its attached rubber tube is drawn into the stomach and sutured in position. The adjacent portion of the stomach is then fixed to the undersurface of the liver. If the duodenum or jejunum is used for the anastomosis it must first be immobilized.

In the ten cases of complete external fistula reported by the author there were four internal biliary fistulae, but as none of the spontaneous fistulae between the stomach or duodenum was of sufficient size to prevent back pressure and jaundice it was necessary in each case to detach the internal fistula and establish a complete external fistula.

Spontaneous internal biliary fistulae are at times the cause of failure of external biliary fistula to remain open until they are ready for transplantation. The author has prevented this complication by the extraperitoneal method of transplantation described.

The stomach is best employed for the anastomosis because it tolerates bile well and because if a fistula occurs it is less serious in the stomach than in the duodenum.

STANLEY H. MENTZER, M.D.

Guerry, L. G. Reconstruction of the Bile Passages with Special Reference to Hepaticoduodenostomy. In 51, 193, 1: 663.

When surgical reconstruction of the bile passages is necessary, direct anastomosis between the bile passages and the duodenum gives the best results. Most failures of autoplasmic reconstruction are due to contraction of the transplanted tissue. Contractions will occur in the absence of a proper submucosa even when the structure transplanted has an epithelial lining. Direct anastomosis assures an ample mucous lining to the reconstructed duct and sufficient submucosa and peritoneal surface to prevent contraction.

In seven cases which he previously reported the author adds two more in which direct anastomosis was done. In the four cases in which it was possible to unite the hepatic duct to the duodenum directly there was no mortality and a thoroughly satisfactory symptomatic cure was obtained.

STANLEY H. MENTZER, M.D.

Topcibasev M Recurrence of Pain After Operations on the Bile Ducts (Ueber Schmerzrezidive nach Operationen der Gallengaenge) *Z. f. exper. appl. Med.* 1930 iv 421

This article is based on twenty two cases of recurrence of pain after operation on the bile ducts. The most frequent cause of true recurrence with symptoms similar to those preceding the operation is overlooked stones. As evidence thereof the author offers in addition to numerous citations from the literature the following observations: (1) the spontaneous passage of stones in the faeces following an attack of pain two months after the operation; (2) the discovery at autopsy after unsuccessful reoperation of a stone half the size of a pigeon's egg at the site of confluence of the two branches of the hepatic duct; and (3) the spontaneous passage of stones through the drain five days after cholecystectomy and drainage of the common duct. In one of the author's cases in which stones were removed from the gall bladder and no other stones could be palpated, two stones were found in the mucosal folds of the extirpated gall bladder.

For the prevention of recurrence removal of the gall bladder is advocated. According to the author's experimental studies dilatation of the bile ducts rarely occurs after this procedure. Stasis occurs in the bile ducts only when there is interference with the flow of bile into the duodenum. When the common duct is found changed and distended at operation it should be opened and drained. In cases with chills, fever, and jaundice before operation this step is indicated absolutely. As infection, cholangitis, hepatitis, and pancreatitis frequently lead to recurrences, the elimination of infecting agents by drainage is necessary. In cholangitis grumous masses containing cholesterol, calcium pigment, and bile sand are often formed in the liver and cause attacks of pain. In one patient operated upon three days after an attack, a pultaceous mass was found filling the gall bladder and common duct. In another case in which operation was performed for typical recurrent attacks of pain, there were no abnormal findings in the gall bladder or common duct, but the liver was greatly changed macroscopically and biopsy disclosed the presence of hepatic cirrhosis. Improvement was noted after treatment with iodine was given.

Adhesions produce severe symptoms only when they cause displacement of organs, kinks, or compression of the pylorus or duodenum. Even extensive roentgenologically demonstrated adhesions and incisional herniae often cause no symptoms. Not infrequently symptoms persist after operations which are done without adequate indications. In such cases the old pains persist because they had no relation to gall bladder disease. Reoperation is indicated only by severe frequently recurring pains. When there is high fever or icterus, the gall bladder must be opened and drained. When the flow of bile into the duodenum is obstructed, choledochoduodenostomy is necessary.

O. DEHN (Z)

De Takáts G Ligation of the Tail of the Pancreas in Juvenile Diabetes *Endocrinology* 1930 xiv 55

The regenerative power of the pancreas has been established by numerous clinical observations. Of all structures, the ducts and islets are most resistant to local destructive processes and seem to have the greatest growth potential. Various pathological conditions destroy a large amount of pancreatic tissue. Whether the insular activity becomes insufficient or not depends upon the rapidity with which pancreatic destruction takes place. In acute pancreatic necrosis, high blood sugar and abnormal sugar tolerance curves are almost the rule and glycosuria is not uncommon. However, the sugar tolerance gradually returns to normal. In cases of carcinoma of the head of the pancreas, glycosuria is seldom observed and when it occurs is only temporary.

In experiments on dogs, hypertrophy and hyperplasia of the islet tissue have been recognized and reproduced repeatedly. Ligation or complete separation of the tail of the pancreas produced evidence of hypertrophy and hyperplasia of the islet tissue, rapid cessation of the external secretion from the separated tail, and in correspondence with the histological findings, increased carbohydrate utilization. The sugar tolerance was increased from three to four months after the operation and then in the normal dog gradually subsided within a year.

With regard to the question as to whether hypertrophy and increased islet function can be brought about in diabetes, the author reports two cases.

The first case was that of a boy thirteen years of age who had suffered from diabetes of increasing severity for six years. The condition was finally stabilized for two years by a diet containing 120 gm of glucose and 40 units of insulin. At operation the tail of the pancreas was found hypoplastic and was divided with the high frequency cautery. Convalescence was stormy, but today a year and a half after the operation, the patient is growing and gaining weight normally. While his insulin requirement is but slightly diminished, he is able to utilize an additional 80 gm of dextrose daily.

The second case reported was that of a boy of sixteen years who had been known to have diabetes for two years and whose tolerance was rapidly becoming less. The patient was given a preoperative diet containing 300 gm of carbohydrate, 75 gm of protein, 100 gm of fat, and 35 units of insulin three times a day. Under local and nitrous oxide anaesthesia the tail of the pancreas was exposed and a strip of fascia lata tied snugly around it. The abdomen was then closed without drainage. The patient made an uneventful recovery and left the hospital on the fourteenth day. Four months later the insulin requirement fell to 18 units with a glucose value of 120 gm. The following month the high carbohydrate and low fat diet was changed to a low carbohydrate and high fat diet with a corresponding reduction in the insulin. Later a severe chicken pox infection aggravated the sugar tolerance. At present the glu-



case value 1 up to 230  $\mu$ m and the insulin can be reduced to 55 units daily

The parallelism between the experiments on animals and the observations in the two clinical cases reported is striking. The tolerance changes gradually at about the fourth month. It does not persist at its highest level but gradually returns to slightly above the preoperative level. The assumption that an islet hypertrophy takes place in the diabetic child could not be verified histologically. The described operation with resulting super regeneration of the islets does not hit at the true cause of diabetes. Unless we succeed in protecting the new islets from the injurious effects of nervous or hormonal origin they will not function any more efficiently than the original cell.

NORMAN G. PARRY, M.D.

Temontani P. A Contribution to the Physiology of the Spleen. Is There a Splenic Hormone? (Contributions to the Physiology of the Spleen, 1933, 1, 1-10.)

The author reports a series of experiments to demonstrate a chemical hormone in the human blood of the spleen and the action of any such hormone on the normal animal. Blood from the splenic vein injected into the jugular vein of a normal animal caused a reduction in the blood pressure and an increase in the size of the liver. As the injection of acetylcholin has a similar effect the author believes that acetylcholin may be the active principle or hormone of the spleen. This substance plays a rôle in the hydrolysis of the blood stream and acts synergistically with adrenalin.

ALFRED ROSE, M.D.

Payne R. L. The Relation of the Spleen to Jaundice. *J. Am. Med. Assoc.* 1933, 103, 664.

Blankenhorn M. A. The Clinical Significance of Jaundice. *J. A. M. A.* 1933, 103, 66.

Ivy A. C. Physiological Disturbances Incident to Obstructive Jaundice. *Arch. Surg.* 1930, 91, 68.

Ivy says that the spleen may destroy red blood cells by an intracellular process which is dependent on the action of the macrophages or by an extracellular action which must be distinctly a lytic process.

In the presence of jaundice associated with enlargement of the spleen it is evident that there is both an intrahepatic and an extrahepatic formation of bile pigments. The extrahepatic source of bile pigments is in the reticulo-endothelial system in which the spleen probably plays a minor part and the bone marrow is the chief depot for bilirubin formation. A careful review of the literature shows nothing to prove a controlling influence of the spleen on the formation of bile pigments in the liver.

From the facts determined by research which have been reported in the literature to date, Payne finds the following conclusions:

1. A certain amount of red blood cell destruction takes place in the spleen.

2. A certain amount of bilirubin is formed in the spleen.

3. The amount of red blood cell destruction and bilirubin formation in the spleen is relatively small as compared with the consummation of these functions elsewhere in the body.

4. In the evaluation of the relation of the spleen to jaundice it must be borne in mind that hyperbilirubinemia associated with dysfunction of the spleen is dependent not only on the spleen but also on the entire hematopoietic system. Particularly must it be remembered that there is commonly an associated hepatitis in which failure of the liver cells to filter bile pigments represents an active rôle in the production of the jaundice.

Blankenhorn discusses chiefly obstructive jaundice. He states that in the study of cases of jaundice one of three procedures is generally followed:

1. If there is a history of colic one argues from cause to effect and concludes that the stone causing the colic obstructs the duct.

2. Tests for liver disease or tests of liver function are done and the finding of liver disease or disordered function is regarded as excluding obstruction by substituting another cause.

3. The symptom of jaundice is studied to see whether obstruction of the ducts alone could give such a distribution of bile pigment.

The author discusses these three procedures. He discusses also the van den Bergh test upon which he does not place much reliance.

The chief purpose of the article is to emphasize the value of the icterus index and examination of the duodenal contents and feces in cases of definite uncomplicated obstructive jaundice. Blankenhorn believes that instead of obtaining help from the physician in the problems of jaundice the surgeon should furnish help to the physician.

Ivy discusses the toxicity of the bile in jaundice. Lack of bile in the intestine and nephritis in obstructive jaundice. He concludes that there is not enough evidence to permit a positive statement as to the cause of death. He discusses also the condition of the heart, the clotting of the blood, and the blood calcium.

In summarizing he says that obstructive jaundice is associated with the failure of a number of physiological mechanisms but it is not known which one is primarily concerned in the development of the condition. The fundamental nature of the reaction involved in the production of the physiological disturbances is not completely understood. The literature indicates that a carbohydrate diet with milk and the administration of cod liver oil and calcium is of value in the treatment.

CA. L. R. STURGEON, M.D.  
Tamontani A. Banti Disease (Splenomegaly and Anemia). *Arch. Surg.* 1933, 97, 53.

The author reports in detail three cases of cryptogenic splenomegaly accompanied by anemia and leucopenia without involvement of the liver. He

states that a constitutional disturbance may precede the splenic enlargement but it is difficult to determine the duration of the condition because of its insidious course

Splenic anemia of the Griesinger Banti type seems to be the same as Banti's disease the two conditions representing only diverse reactions to the same cause A determining factor in Banti's disease may be a disturbance in the correlation between the spleen the glands of internal secretion and the hematopoietic organs

The results of X ray therapy in Banti's disease are not encouraging In the cases reported by the author splenectomy was followed by improvement

A LOUIS ROSE M D

### MISCELLANEOUS

Gatewood Subphrenic Abscess *Am J W S* 1930  
CLXX 398

This article is based on a review of the literature and forty one cases observed in the Presbyterian

Hospital Chicago during the past ten years The mortality of the condition is 30 per cent Of the cases reviewed the focus of infection was in the stomach or duodenum in fourteen (perforated ulcer in twelve perforated carcinoma in two) in the appendix in ten in the liver or bile passages in seven (liver abscess in two suppurative cholecystitis and cholangitis in five) in the kidney region (perinephritic abscess) in three in the pancreas in one in other abdominal viscera in four in the thorax in one and in a remote site (carbuncle of the neck) in one

The author emphasizes the importance of prophylaxis by the prompt elimination of appendiceal and other contributory causes and by adequate drainage and the use of the semisitting position in the treatment of abdominal infections

In conclusion he states that the possibility of subphrenic abscess should be considered in the case of any patient who does not show the expected improvement after an abdominal operation

HARRY W FINK M D

# GYNECOLOGY

## UTERUS

Schoelke M Histogenesis and Morphogenesis of the Uterine Myoma (Zentralblatt für Gynäkologie und Geburtshilfe) 1933

The author has attempted to classify myomata in groups according to the degree of differentiation of the mother cells. For a satisfactory explanation of the origin of these tumors the assumption of the existence of myoblasts is necessary. Schaper and Cohen demonstrated in many tissues the presence of centers of germination some of which are in the form of indifferent or non-differentiated zones. In epithelium with its appositional form of growth to ward the surface conditions are relatively simple and evident. The growth of the uterine muscle is essentially interstitial and germinative cells are diffused throughout the muscle of the uterus. A large percentage of the histiocytes and cells in the adventitia of the small vessels may be myoblasts. As they present a non-characteristic appearance and do not stain, they cannot be identified individually. Only when they are markedly increased in number as in pregnancy and inflammation does the diagnosis gain probability. The character of these myoblasts is determined by their inherent ability to proliferate. The development into more or less differentiated muscle fibers does not occur through ripening or maturing of the myoblasts, i.e. as a continuous process but progresses interruptedly by evolutionary stages in which on division the mother myoblast retains its characteristics whereas the daughter cell shows a slight advance toward differentiation. The daughter cell acts in the same way as the mother cell and produces a granddaughter cell which in turn exhibits a slight advance toward the differentiated muscle fiber.

The process of development described necessitates the assumption of unequal or non-uniform cell division which is somewhat opposed to accepted theories of histological development. That unequal division by which the two cells differ from each other may occur is known from the phenomena of embryonic development—differentiation of the germ layers, organ anlage, etc. That the same phenomenon may occur also in the mature organ is evident from the following facts:

From the pioneer studies of Schaper and Cohen we know that every organ contains germinative centers from which the elements used up in function are replaced. Histological demonstration of this fact has been obtained however in only a few organs. Regeneration of the intestinal or uterine mucosa proceeds from non-differentiated or indifferent zones (crypts fundi of the glands) which have no organic

function and serve only for regeneration. If after menstruation for example all of the germinative cells became differentiated as would probably be the case in a process of uniform division and continuous development no undifferentiated cells would remain for regenerative purposes and regeneration could not occur after later menstrual periods. To a certain degree the centers of regeneration become exhausted physiologically and thus lead to aging of the organ.

It is therefore evident that every organ consists of two entirely different elements: the one a germinative element with cells having no other function than the giving off of cells with the capacity for differentiating into the functioning element and the other a functioning element with greater or less differentiation which conserves the purposes of true function of the organ. Whereas in normal tissues these processes are governed by requirements in tumor growth they proceed wildly until the proliferative capacity of the myoblasts is exhausted. The duration and extent of growth (proliferation) depend entirely on the vitality of the mother cell. The farther this cell is removed from the differentiated cell (as for example in young organs) the greater is its growth potency and the closer it approaches differentiation the mature muscle cell (senescence, frequent pregnancies, menopause) the sooner all the process of proliferation reach its end. This explains the frequency of myoma in nulliparae and women who have borne a few children.

Meyer advanced a similar hypothesis but suggested as the origin of myomata the normal cell groups of youthful (i.e. approaching the embryonic) character. In the author's opinion well-matured cells may also divide. As mother cells for the development of the myoma however only undifferentiated myoblasts are to be considered.

In conclusion the author attempts to describe the general character of a tumor exhibiting the phenomena of strong and rapid growth, benignancy, and malignancy. Initially determinative is the proliferative potency which in every myoblast has a definite limit and is greater the more nearly the cell approaches the beginnings of development the more embryonic its character. Upon this characteristic depend the ultimate size of the tumor and the rapidity with which it ages. An essential characteristic of malignant tumors is a strong proliferative power. Another characteristic is rapidity of growth which is determined by two factors—the first the capacity for proliferation with which the rapidity of growth increases and decreases and the second the change with which the cell must undergo to become a tumor cell. The second factor exhibits marked qualitative differences and to a greater or less extent overcomes the

normal limitation of growth. Upon the degree of this unreining of the process of proliferation depend the rate of growth of the tumor and its benignancy or malignancy. The character of a given tumor is there fore the product of the proliferative power stored up in its cells.

HANS NEUMANN (G)

Novak E and Koff A K. The Ovarian and Pituitary Changes Associated with Hydatidiform Mole and Chorionepithelioma. *Am J Obst & Gynec* 1930 xx 481

This article is based on a study of two cases of hydatidiform mole and two of chorionepithelioma in all of which the ovaries were available for study. In one of the cases of chorionepithelioma a histological study of the pituitary gland was also possible. The importance of such observations is especially great at the present time because of recent developments in our knowledge of the physiological interrelationship between the ovaries and the anterior lobe of the pituitary gland. The remarkable hyperreactio luteinalis which probably occurs at some stage in every case of hydatidiform mole and chorionepithelioma but which does not always assume the form of so called multiple lutein cysts is definitely comparable to the ovarian changes produced by implantations or injections of the anterior lobe of the pituitary gland. Histological studies such as those included in this report and biochemical studies reported by others leave little doubt that the anterior lobe of the pituitary gland is the immediate cause of the lutein hyperreaction occurring in the ovaries in such cases. The authors studies indicate that the hyperluteinization involves both the granulosa and the theca interna.

Histological study of the anterior lobe of the pituitary gland in one of the cases of chorionepithelioma reported by the authors showed an abnormally marked and persistent pregnancy reaction. This observation offers a histological explanation for persistence of the pregnancy reaction long after removal of the primary tumor which has recently been reported by several gynecologists. The abnormally persistent pregnancy reaction in the pituitary gland is due no doubt to the presence of considerable masses of trophoblastic tissue in the metastases. In short the evidence indicates that the interaction is triangular the trophoblastic increase being responsible for the pituitary reaction and the latter in turn calling forth the abnormal ovarian response.

E. L. CORNELL M.D.

Ehrhardt K. Chorionepithelioma and the Aschheim Zondek Reaction of Pregnancy (Chorion epitheliom und Schangerschaftsreaktion AZR). *Zeitschrift f. Gynaek* 1930 p 1538

Ehrhardt reports a case of chorionepithelioma malignum in which he determined the content of hormone of the anterior lobe of the pituitary gland in the urine. The patient was a thirty year old woman who developed symptoms of hram tumor one and one half years after the spontaneous ex-

pulsion of a hydatid mole. The gynecological findings were not entirely clear. Curettage was postponed until a hormonal analysis of the urine could be made. The Aschheim Zondek reaction was positive in undiluted urine and in urine diluted up to ninety times its volume. From these results Ehrhardt reckoned a content of 90 000 mouse units of the hormone of the anterior lobe of the pituitary gland per liter of urine.

Curettage disclosed a mucous membrane loosened by decidual change without any evidence of chorion epithelioma. The patient died. Autopsy showed chorionepithelioma malignum of the right angle of the fundus of the uterus with metastases in the brain lungs kidneys spleen and left ovary. During the six weeks of observation the hormone content of the urine varied between 80 000 and 100 000 mouse units per liter. Positive results were obtained also in implantation experiments made with the tumor tissue.

ROESSLER (G)

Fahlbusch O. The Aschheim Zondek Reaction and the Indication for Operation for Chorionepithelioma (Aschheim Zondeksche Reaktion und Indikation zur Operation des Chorionepithelioms). *Zentralbl. f. Gynaek* 1930 p 1542

On the basis of a doubtful case of chorionepithelioma Fahlbusch calls attention to the great diagnostic value of the Aschheim Zondek reaction in cases of tumors of this type. In the case reported curettage following a miscarriage was soon followed by recurrence of the bleeding. Four weeks later another curettage was done. Histological examination of the scrapings then suggested chorionepithelioma. Before performing a radical operation Fahlbusch decided to make an Aschheim Zondek test. This test made on urine obtained after the curettage was negative. Fahlbusch then decided to delay operation and repeat the tests. Later hormone tests were also negative. Up to the present time the patient has remained clinically well.

ROESSLER (G)

#### ADNEXAL AND PERIUTERINE CONDITIONS

Celler F C. Cell Changes in the Ovary of the Sexually Mature White Mouse After Roentgen Irradiation (Zellveränderungen im Eierstock der geschlechtsreifen weissen Maus nach Roentgenbestrahlung). *Arch f. Gynaek* 1930 cxli 61

In previous articles Geller called attention to the fact that in the ovaries of mice exposed to roentgen irradiation there were always to be found in the periphery numerous small empty follicles with completely intact epithelium. Moreover it appeared probable that at least some of the lutein cells which were frequently found in a follicular arrangement in the irradiated ovaries had their origin from these small follicles and that the latter in turn were derived from the proliferating germinal epithelium. Geller has attempted to determine the origin of the follicles and lutein cells in irradiated mouse ovaries by studying the cell changes.

In a brief description of the normal histology of the mouse ovary the author states that the primary follicles present under the germinal epithelium are usually collected at one pole of the ovary. The cells of the interfollicular tissue are usually vertical to the radially arranged connective tissue of the stroma and are similar to but somewhat smaller than the follicular cells. They are compressed by the growing follicle and adhere to the border of the follicle like a theca interna. The thecal lutein cells of the atretic follicle are never radially arranged as in the ovary of the rabbit or the pregnant woman.

The author's investigations were carried out on forty five mature white mice which were irradiated with varying doses of X rays and killed from two to twenty four weeks after the irradiation. The ovaries were examined microscopically after fixation with formalin and staining. The author summarizes the results of his work as follows:

After roentgen irradiation of the ovaries of mature white mice with from 200 to 300 R all visible ova and the larger follicles and then the corpora lutea degenerate. During this time there appear under the germinal epithelium numerous large cells some of which are surrounded by flat cells. These are perhaps primitive ova which have reached a certain stage of development. In the external cortex there are numerous very small primary follicles most of which are empty but some of which contain distinct nuclei or cells. The epithelium of these follicles is partially degenerated but for the most part intact. In the first months after the irradiation the primary follicles become more numerous. They do not disappear completely until after many months. In the period immediately after the irradiation most of the follicles in the cortical layer are probably persistent young follicles but later newly formed follicles appear. Most of the primary follicles are destroyed in an early stage of development. The epithelial cells of the rest are changed into lutein cells. At the same time the interfollicular cells are also transformed into lutein cells a fact indicating that the interfollicular cells are also of epithelial origin. The assumption that the interstitial cells originate from the germinal epithelium is contrary to the theory of the majority of investigators since Winawer who holds that these cells are of connective tissue origin.

THE CH (C)

Alb nese A A Case of Tuberculous Ovarian Cyst  
(Un c so d c t ova ica t b roclare) A ch d  
sll e g 93 xxx 1 547

The author reports the case of a woman twenty four years of age who presented a tumefaction of the abdomen which had been present for years and had rapidly increased in size during the last four months and who complained of an occasional dull pain in the lower abdomen frequency and burning on urination. There was a history of tuberculosis in the patient's family.

On physical examination the patient was found to be poorly nourished. The lungs were apparently

normal. The abdominal wall was tense especially in the subumbilical region giving the impression of a six months pregnancy. The urine was acid and contained a trace of albumin and numerous leucocytes. Vaginal examination revealed the corpus uteri retroverted and retroflexed. Its size was not definitely made out but it seemed small and apparently pushed into the pouch of Douglas by a large cystic mass which extended almost to the umbilicus. The mass was spherical but spread out toward the iliac fossae and was fairly fluctuant. It was smooth on the anterior side but irregularly knob like on the side in the Douglas pouch especially next to the dome of the bladder. The patient had a constant afternoon fever.

A clinical diagnosis of tuberculosis of the genital organs with sacculated peritonitis was made.

Surgical intervention by Spinto revealed a cystic mass which seemed to belong to the left ovary and the presence of small tuberculous foci in both ovaries. Subtotal hysterectomy and excision of the adnexa were done.

Gross pathological examination revealed follicular cysts of the left ovary. One of them was the size of an adult's head and subdivided into two partitions filled with pus. The right ovary was slightly larger than normal and its surface was irregular with small follicular cysts. The uterus was hypoplastic. The tubes were normal. The left ovary contained small foci of caseous tuberculosis.

Microscopic examination of the wall of the cyst adherent to the bladder revealed inflammatory tissue with foci of tuberculous granulation tissue. No organisms were demonstrated.

On the thirteenth day after the operation the patient developed intestinal obstruction. Ileostomy was done but death resulted.

Clinical recognition of the association of a neoplasm and tuberculosis is difficult because the neoplasm often dominates the picture. The pain and fever which indicate inflammation may be due to torsion of a simple cyst. The bladder symptoms may be secondary to pressure. The foci of tuberculosis are often so small that they may be missed. At times even exploration may not reveal the true nature of the cyst.

The author believes that in the case reported the ovarian cyst was secondarily invaded by the tuberculosis.

A LOUIS ROSE MD

Samp on J A Post alpingectomy Endometrial  
(End salpingitis) Im J Ob G & G 3 193

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The growth of epithelium initiated in follow-up scars by operative injury is usually confined to the repair of the lining of the viscus; it does not invade the walls of the organ. The epithelium ceases to grow when the wound is healed and when transplanted into immediate or remote operative wounds does not live. Exceptions to this rule are infrequent often transitory and usually insignificant. An important exception however is the behavior of fetal

epithelium in the repair of salpingectomy wounds. Sprouts of this epithelium often invade the wall of the stump and sometimes extend beyond it. More over they may continue to grow after healing is complete. Seedlings having the same structure as the sprouts occur in both the immediate and remote operative wounds.

If the intestinal epithelium displayed the same activity in the healing of appendectomy wounds as that shown by tubal epithelium in the repair of salpingectomy wounds the appendix would be removed only for acute inflammatory conditions. Its removal for chronic appendicitis and as a routine procedure in other operations would be discouraged.

The author studied tubal stumps from 100 patients who had been subjected to salpingectomy or tubal sterilization. As bilateral salpingectomy or tubal sterilization had been done in the cases of 47 of the patients 147 stumps were available. Misplaced muellerian mucosa was found in or about 112 of these stumps as compared with 16 instances of misplaced muellerian mucosa in 200 cornua from 100 uteri with intact tubes which had been removed by operation. Even in 50 uteri with intact tubes removed for the sequelae of salpingitis (a well recognized cause of endosalpingiosis) misplaced muellerian mucosa was found in 19 of the 100 uterine ends of the tubes.

By injecting the uterine cavity with pigmented gelatin the origin of the sprouts from the tubal mucosa in both the intact tubes and the stumps could be more easily demonstrated than in the non-injected specimens and their course followed as readily as that of an injected blood vessel.

A previous endosalpingiosis was probably present in only a relatively small percentage of the tubal stumps. In the majority it arose from the over activity of tubal epithelium in the repair of the salpingectomy wound. Its incidence was as high after tubal sterilization as after salpingectomy for salpingitis. The condition for which the tube was removed as well as the usual type of salpingectomy was apparently of minor importance in the etiology of endosalpingiosis as compared with other factors which at present are not fully understood.

Postsalpingectomy endosalpingiosis usually arises from sprouts growing out from the traumatized mucosa of the tubal stump. The sprouts may be terminal or lateral. In extending beyond the wall of the tube the sprouts invade the tissue in which the stump is buried or any organ or structure which may be adherent to it such as the wall of the intestine (4 cases), the ovary (4 cases) and the abdominal wall (3 cases).

The misplaced tubal mucosa in these lesions at times retains its original structure and at other times assumes the structure and function of the uterine mucosa. It presents the histological picture of endometriosis of non operative origin.

In the various operative procedures incident to salpingectomy bits of tubal and uterine mucosa may be transplanted by the surgeon to both the imme-

diante and remote fields. Endosalpingiosis with the same histological structure as the sprouts is found (as seedlings) in situations where tubal and uterine epithelium might have been sown.

When endosalpingiosis is confined to the tubal stump it is of no more clinical significance than endosalpingiosis of non operative origin. When it extends beyond the stump conditions often arise which require a second operation. These conditions were initiated at the first operation.

Hysterectomy is followed by fewer complications than salpingectomy. A retained uterus often requires a second operation for conditions other than postsalpingectomy endosalpingiosis.

Conservative surgery does not always conserve health. It is important to use better judgment in the choice of operation for patients requiring salpingectomy and tubal sterilization. If hysterectomy is contra indicated a technique should be employed which will lessen the incidence of postsalpingectomy endosalpingiosis.

E. L. CORNELL, M.D.

## EXTERNAL GENITALIA

Schneider P. Carcinoma of Bartholin's Glands  
(Das Carcinom der Bartholinschen Druese) *Zentralbl f Gynaek* 1930 p 1986

A woman forty six years of age noted a swelling in the region of the right labium mayus exactly corresponding in position to the gland of Bartholin. In seven months the tumor grew to the size of an apricot. It was firmly fixed.

Through a curved incision the tumor was dissected free partly by sharp and partly by blunt dissection. It extended down to the perineum. Microscopic examination showed it to be a squamous celled carcinoma. The glands of the right inguinal region which were also removed contained large nests of carcinoma cells.

Three months after the operation roentgen treatment was begun. In the course of the next three years the patient received nineteen irradiations. Four years after the operation a hard sharply defined knot of tissue the size of a cherry was found at the site of the original operation.

The author describes the structure of Bartholin's glands emphasizing particularly the varied character of their epithelia which explains the different forms of cancer occurring in them. He also reviews the literature and discusses the clinical symptoms, the rate of growth of the carcinoma (which apparently does not depend on the patient's age) and the treatment. He states that the tendency toward recurrence is very marked. In several cases however recurrences have been operated upon successfully.

HANS O. NEUMANN (G)

Kleegman S. J. Trichomonas Vaginalis Vaginitis  
A Common Cause of Leucorrhoea *Surg Gynec & Obst* 1930 h 552

In a large group of cases of leucorrhoea of vaginal origin the condition is very resistant to treatment.

and repeated smear examinations throw no light on the cause. In the majority of the cases the leucorrhoea is due to vaginitis caused by a flagellate—the trichomonas vaginalis.

It is generally agreed that this organism is found in the vagina frequently its incidence ranging from 6 to 50 per cent. It has never been discovered before menstruation but is often found during pregnancy and after the menopause. The mole of infection has not been demonstrated.

The symptoms and signs of vaginitis due to trichomonas vaginalis are so characteristic that the diagnosis can usually be made on the basis of the history. The outstanding sign is an irritating leucorrhoea with disagreeable odor frequently accompanied by itching which may be severe enough to disturb the patient's sleep. Dyspareunia, frequent urinary symptoms are uncommon. Examination reveals an acute vulvitis with a scant foamy discharge between the labia. There may be a fermetitis affecting the inner aspects of the thighs. The vagina is inflamed being best described as a strawberry vagina and bleeds when sponged. The cervical mucosa is red. Frequently there is a cervical erosion of varying size. In some cases an eccentric erosion of the posterior wall from the external os is found. The vaginal discharge contains varying amounts of a white or yellow discharge with minute air bubbles giving it a foamy appearance.

The clinical diagnosis can be quickly verified by placing a drop of the discharge on a slide adding one drop of normal saline solution and examining under the high dry lens. The picture is typical a large number of pus cells few or no epithelial cells and a very few numerous trichomonads. The organism is in constant motion and when free from debris can move rapidly. When caught under a group of cells it will agitate the entire clump in a rapid and irregular oscillating motion. When dead it becomes round and cannot be differentiated from the pus cell therefore it cannot be recognized in stained smears unless the smears are fixed and stained in a special way. The clinical picture may be identical with that of gonorrhoea.

The treatment recommended by the author includes the following procedures:

1. Thorough scrubbing of the vagina with tincture of green soap.

2. Bathing of the vagina with full strength pyroligneous acid. In order that every part of the vaginal mucosa may be reached the vaginal walls must be stretched and the speculum turned around.

3. Packing of the vagina with three or more small lamb's wool tampons well coated with Lassar paste. The tampons are left in place until the patient returns for the next treatment.

It is essential that treatments be continued throughout menstrual periods as blood apparently favors the growth of the organisms. During the acute stage the patient should be seen three times a week and only per cent mercurochrome should be applied before the Lassar tampons are inserted.

When the mucosa has healed two treatments a week will be sufficient and should be continued until the mucosa is so thoroughly dry that it resembles skin which usually takes from six to eight weeks. The patient should not be considered cured until she has been symptom free and organism free for four months after discontinuance of the treatment. Cautionization of cervical erosions should be delayed until after several weeks as most of the erosion will heal under the treatment described. If a co-existing gonococcal infection is present the trichomonad infection should be disregarded until the gonorrhoea has been cured.

ALBERT M. VOLLMER, M.D.

#### Lower Vaginal Vesicovaginal Fistula (Sg.)

In the nineteenth century vesicovaginal fistula were common that Marston Sims founded the Woman's Hospital of New York solely for their treatment.

Vesicovaginal fistula may be caused by direct surgical injury interference with the blood supply of the parts involved or the pressure of the head of the fetus during pregnancy or by suture injury during delivery a pessary syphilis or cancer.

The diagnosis is usually easy. In doubtful cases the injection of dye into the bladder is of great aid.

No one method of treatment is always reliable. The author prefers to operate by the vaginal route. He performs the operation under spinal anesthesia to obtain satisfactory relaxation. As a rule operation should be performed early before much scar tissue has formed. However when the fistula is small it is safe to delay operation to determine whether it will heal under treatment with an indwelling catheter.

The author describes with illustrations the technique he has found most satisfactory. Good results were obtained in 90 per cent of the cases. When the opening is too large or the tissues are too fayed for a plastic operation a uterine transplantation should be done.

T. FLOYD BELL, M.D.

#### MISCELLANEOUS

##### Cetrone, M.B. Menstrual Disturbance of Ovarian Origin (Stillbirth, menses, etc.)

The author calls attention to a syndrome frequently seen not only just before the menopause but also during active sexual life which is characterized by disturbances in the rhythm of menstruation, menorrhagia, metrorrhagia or oligomenorrhoea, continuous premenstrual or intermenstrual pain and sometimes pain on sexual intercourse or palpation of the ovary. As a rule the pain is in the lower quadrant of the abdomen and radiate to the lumbar region.

Women presenting this syndrome generally have ovarian lesions. The ovaries show many follicular cysts with more or less marked degeneration of the follicles themselves and marked vascularization and

congestion. Recent corpora lutea are almost never present. The ovaries are often prolapsed. The uterus also is prolapsed and frequently is retroverted. The tonus of the uterine muscle is deficient. Pelvic varicocele is often found. In sterile women the symptoms generally begin at puberty and in women with children after a delivery or abortion.

The women are generally tall slender and the hypothyroid hypoadrenal type. As a rule they have a distinctly schizothymic temperament. The muscles are defective or atrophic and the ligaments incompletely developed. The rhythm of maturation of the follicles is greatly hastened. This is due not to congestion of the ovaries but to a disturbance of the equilibrium of the endocrine glands chiefly hyperthyroid and hypoadrenal function.

The treatment is partial resection of the ovary. This is conservative treatment for it not only regularizes menstruation and stops the pain but is often followed by pregnancy. It should be supplemented by opotherapy with suprarenal cortex and antithyroid treatment or roentgen irradiation. Many of the good effects of irradiation of the glands in the treatment of menorrhagia and metrorrhagia are explained by this theory of the cause of the disorders.

Menstrual disturbances of another type are caused by the sclerocystic ovary. The transformation of the follicles into cysts is the result of inflammation. The treatment is removal of the diseased part of the ovary with supplementary operation on the tubes. This is not effective unless the inflammation is cured.

ADREY G. MORGAN, M.D.

Keene F. E. and Kimbrough R. A. Endometriosis. A Review Based on the Study of 118 Cases. *J. Am. Med. Ass.* 1930 xciv 1164.

Because of the wide variation in the pathological manifestations a discussion of the symptoms of endometriosis necessitates classification of the cases into three main groups: (1) those of intraperitoneal endometriosis which is the most common manifestation and includes lesions of the ovaries, tubes, uterus, pelvic peritoneum and intestines; (2) those of adenomata of the rectovaginal septum; and (3) those with transplants or fistulae in the umbilicus or a laparotomy scar.

In intraperitoneal endometriosis the subjective symptoms show wide variations in degree as well as in kind. They are dependent on several factors, chief among which are the extent of the lesion and the nature of the complicating pathological changes. Exaggeration of pain or its occurrence only at the time of or shortly before menstruation is characteristic but this sequence of events may be absent. The clinical picture as a whole rather than isolated symptoms must be considered in the diagnosis. The syndrome may be summarized as follows: (1) age between twenty-five years and the menopause; (2) sterility absolute or relative; (3) abnormal menstruation usually menorrhagia; (4) dysmenorrhea of the acquired type; (5) dyspareunia; (6) sacral back

ache; (7) intermenstrual pain in the lower part of the abdomen with increased discomfort at the time of menstruation; and (8) pain in the region of the bladder which bears a distinct relationship to menstruation.

Objective observations likewise vary with the extent and nature of the lesion but in the presence of ovarian endometriomata and well developed peritoneal implants they are fairly uniform and characteristic. On one or both sides of and blending into the partially fixed uterus there is a tender, densely adherent semisolid or firm adnexal mass. Commonly the uterus is in adherent retroflexion and contains one myoma or more. Typical of the lesion are nodulations in the cul de sac which are most readily detected by rectal palpation. The rectal mucosa overlying the nodulations is of normal appearance and never adherent to the nodules. Peritoneal implants in the cul de sac without associated gross ovarian lesions are manifested by an indefinite thickening or nodulation combined with the uterine symptoms mentioned.

In rectovaginal endometriosis there may be no symptoms when the growth is small and isolated but pain coincident with menstruation and relieved during the intermenstrual period occurs with an increase in the size and depth of the invasion.

Endometriosis of the umbilicus and laparotomy scars is characterized by pain and swelling of the growths during the menstrual periods. Occasionally a periodic discharge of blood occurs from the nodules at the time of menstruation. The implantation adenomata are usually attached to the fascia. Therefore during the earlier stages of their development they are deeply placed and are recognized as tender, somewhat fixed masses along the laparotomy scar which on palpation suggest an incarcerated omental hernia. The more superficial growths and those primarily of umbilical origin may present a bluish discoloration and suggest chronic inflammatory thickening.

The treatment of endometriosis is based on the fact that ovarian function is essential to the activity and proliferation of the lesions. However, as most of the subjects are young women it is usually best to be conservative when the invasion is not too extensive. Of 14 married women in whom the child-bearing function was preserved and who were operated upon a year or more ago, normal pregnancy occurred in 28 per cent. Of all women with ovarian lesions in whom some ovarian function was conserved at operation, 95.8 per cent were entirely relieved of their symptoms and the remaining 4.2 per cent were greatly benefited.

Surgery is the procedure of choice in the treatment of symptomatic intraperitoneal lesions. Irradiation with radium or the X-rays should be resorted to only rarely as a menopausal dose is required if regression is to follow. Rectovaginal adenomata causing severe rectal pain, bleeding, backache or partial occlusion of the intestine can be successfully treated with radium or the X-rays provided no demonstrable



ovarian lesions are present. The simple superficial implants are easily destroyed by cauterization. The small peritoneal implants are symptomless and increase in size slowly; hence they require no treatment.

ROBERT M. C. RE, M.D.

**Petit Dutaillys P.** The Repair After Healing of a Complete Tear of the Perineum Extending to the Middle Third of the Rectovaginal Septum (Réparation après cicatrisation d'une lésion complète du périmètre périnéal et tiers moyen du rectum). *Revue de Gynécologie* 1933, 117, 455.

As a knowledge of the embryology and anatomy of the structures involved in a complete perineal laceration is essential for the satisfactory repair of such laceration, the author describes in detail the development of the perineum from the cloaca and its sphincter. This description and that of the surgical technique he employs for repair are supplemented by illustrations.

Exact anatomical reconstruction is necessary for proper function. The author begins his repair by restoring the vaginal and anal canals after separating their mucous membranes from the scar. When these canals have been sutured, he begins the reconstruction of the perineum, approximating first the severed ends of the anal sphincter and working upward until the vulvovaginal sphincter has been restored. His technique does not differ greatly from the standard methods.

H. ROSE C. BLACK, M.D.

**Dannreuther W. T.** The Control of Morbidity and Mortality Following Pelvic Surgery: A Review of 1,000 Consecutive Personal Cases. *St. Louis Gyn. & Obst.* 1933, 1, 5.

The author reviews 1,000 surgically treated cases to determine the adequacy of the preoperative study and preparation, whether or not the morbidity was as low as it should have been, and whether or not any of the fatalities could have been avoided.

His preoperative study includes careful taking of the history, physical examination, appropriate laboratory tests, and efforts to determine possible remote causes of pelvic symptoms. No laboratory examinations are done as a routine.

Catheterized urine is examined macroscopically and microscopically. Indicanuria, bacteriuria, and obstinate constipation are regarded as indications for thorough preoperative cleansing of the intestines. The colon is unloaded by means of milk of magnesia, mineral oil, and enemata, but cathartics are avoided. All patients are encouraged to drink water freely.

In the cases of patients to be subjected to an elective operation, a cystoscopic examination is made and in the case of those with pain in the hypochondriac or lumbar regions an indigo carmine test of renal function is done.

When leucorrhoea is present, smears are taken from the urethra, vagina, and cervix. If pyogenic organisms are found, operation is postponed.

Biopsy specimens are taken by surgical diathermy from every eroded, ulcerated, or indurated cervix.

In cases with pyrexia or other signs of inflammation, a complete blood count and sedimentation time test are made. Patients with hemoglobin less than 65 per cent or a red cell count below 3,500,000 are given a transfusion.

When the gums are red and spongy or pyorrhoea is present, operation is postponed.

In cases of coryza, cough, or hoarseness, operation is performed only as an emergency procedure and then only under spinal anesthesia.

When there is evidence of cardiac function disturbance, an electrocardiogram is made. Patients with marked lengthening of conduction time are put to bed and given digitalis before operation.

Pronounced arterial hypertension, renal lesions, and metabolic disturbances are regarded as indications for preoperative treatment, spinal anesthesia, and prompt postoperative chemotherapy with glucose, alkalies, or chlorides.

After the operation, the wound is left undisturbed for eight days. If a small gutta serena drain has been placed beneath the fat, it is removed on the fifth day. Vaginal plastic wounds are kept dry and dusted with antiseptic for seven days. The bladder is catheterized every six hours for three days, irrespective of the inclination to void. In the cases of catheterized patients, the use of hexamethylenamine and acid sodium phosphate is begun promptly.

Gauze strips and cigarette drains placed to protect raw surfaces or provide for slight oozing are removed in forty-eight hours. Those inserted because of suppuration are shortened gradually.

After curettage of the uterus, the uterine cavity is packed with iodoform gauze and the patient is given 0.5 ccm of pituitrin intravenously to promote rapid uterine involution and prevent uterine retrodisplacement.

In cases treated with radium, the vagina is packed with iodoform gauze to dislocate the bladder and rectum, and the bladder is drained with a Pezzer catheter while the radium is in situ. After removal of the radium, the patient is given an enema and douche.

In cases of vesicovaginal and urethrovaginal fistula, an indwelling catheter is left in place for from ten to fourteen days. The catheter is flushed daily with a 2 per cent boric acid solution and a urinary antiseptic is given until it is removed. Rectovaginal fistulae are protected by restricting the diet to fluids and causing constipation for eight days.

In cases with persistent vomiting, autolavage, gastric lavage, and duodenal tube are used early.

A rectal tube is inserted on the second day after operation, but enemata are withheld until the third day. Enemata and colonic irrigations are used freely, but cathartics are avoided while the patient is confined to bed.

All patients are encouraged to move their arms and legs and to change their position at frequent intervals early to prevent embolism.

Patients subjected to anaesthesia for more than an hour or showing signs of impending shock are given 1 000 c cm of a 5 per cent glucose solution by hypodermoclysis or intravenous injection

Complications developed during convalescence in 79 of the cases reviewed the morbidity being therefore 79 per cent In some cases they were multiple The nature of the complications was as follows

|                          | C se |
|--------------------------|------|
| Gastro-intestinal        | 0    |
| Pulmonary                | 17   |
| Infection of wound       | 6    |
| Urinary                  | 12   |
| Cardiovascular           | 11   |
| Systemic                 |      |
| Postoperative hæmorrhage | 5    |

The gastro intestinal complications were fecal fistula in 6 cases acute peritonitis in 5 acute obstruction of the intestines in 3 pseudo ileus in 2 and paralytic ileus duodenal fistula acute dilatation of the stomach and acute parotitis in 1 case each

The pulmonary complications were pneumonia in 12 cases acute pulmonary oedema in 5 cases and

pleurisy empyema and pulmonary infarction in 1 case each

Infection occurred in 13 abdominal and 3 perineal wounds

The urinary complications were acute pyelitis in 8 cases cystitis in 3 cases and suprapubic urinary fistula in 1 case

There were 4 cases of thrombophlebitis 3 cases of embolism 2 cases of tachycardia 1 case of acute cardiac dilatation and 1 case of auricular fibrillation

The systemic complications consisted of shock and acidosis in 2 cases each and thyrotoxicosis uræmia and alkalosis in 1 case each

The hæmorrhages included a massive intraperitoneal hæmorrhage in a case of cancer a hæmorrhage following a Sturmdorff tracheloplasty and a hæmorrhage following a vaginal myomectomy

There were 19 deaths a mortality of 19 per cent The cause of death was embolism and pneumonia in 3 cases each peritonitis ileus and acidosis in 2 cases each and shock uræmia exhaustion thyrotoxicosis hæmorrhage intestinal obstruction and oedema of the lung in 1 case each

ALBERT M VOLLNER M D

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

**Zondek B.** The Technique of Testing for Pregnancy by Demonstrating the Hormone of the Anterior Lobe of the Hypophysis in the Urine. I. Acceleration of the Reaction by Sedimentation of the Hormone. II. Detoxication of the Urine. Improvement of the Test for Pregnancy (Zur Methodik der Schwangerschaftsdiagnose durch den Hormonnachweis des Hypophysenhormons in der Urin. I. Beschleunigung der Reaktion durch Sedimentation des Hormons. II. Entgiftung des Urins. Verbesserung der Schwangerschaftsdiagnostik). *Arch. f. Gyn.* 1931, 194.

The test for pregnancy developed by Zondek and Aschheim has no relation to the growth stimulating effect exerted on the uterus by the serum of pregnant women which was demonstrated by Binz as the latter may be produced also by other forms of stimulation. The Zondek and Aschheim test is based on the presence in the urine of the hormone of the anterior lobe of the hypophysis, not the ovarian hormone and on processes taking place in the ovaries not in the uterus. Its disadvantages are that it requires more time and as 6 or 7 per cent of urines are toxic it can be applied in only about 93 per cent of cases. The time may be shortened by injecting larger quantities of urine but only positive results are of value. Zondek therefore tried to obtain larger amounts of the hormone causing a quicker reaction by centrifugalizing the hormone from the urine.

Six cubic centimeters of early morning urine were weakly acidified with acetic acid, filtered, mixed with 240 c.c.m. of alcohol shaken for five minutes and then allowed to stand for half an hour. At the end of that time the sediment which contained the hormone was separated by centrifugalization and shaken up for five minutes with from 30 to 50 c.c.m. of ether. The ether was then decanted and the residue taken up in 1 c.c.m. of water. The resulting solution contained the hormone. At the end of an hour there was obtained a pale yellow slightly opalescent solution which contained the hormone content of 6 times its volume of urine. This may be used even if it becomes cloudy.

With this solution the test animals were injected 4 times on the first day and twice on the second day (0.4 c.c.m. being used at each injection). After fifty-seven hours they were killed and the ovaries examined for ecchymoses, the presence of which denotes a positive reaction. Corpora lutea are seldom present so early. As the reaction may be negative and only a positive reaction is of value the old method was usually employed simultaneously although it requires one hundred hours for its completion.

The quicker test should be used only when haste is necessary as in cases in which the advisability of operation for tubal pregnancy must be determined

In the use of the older test the urine may be detoxified by passing it through a Berkefeld filter. However a simpler and therefore better method consists in shaking it up with ether which takes up all of the toxic substances including folliculin and leaves the hypophyseal hormone. A rigid technique should be used. In the technique employed by the author from 30 to 40 c.c.m. of early morning urine are weakly acidified with acetic acid filtered and shaken up for three minutes with 120 c.c.m. of ether. The urine which is separated from the supernatant ether with a funnel is then allowed to stand for one hour or is placed on a water bath at a temperature no higher than 45 degrees C. until all traces of ether have evaporated. The resulting detoxified urine is injected into the test animal in the usual 6 injections of from 0.3 to 0.4 c.c.m. In this manner it is possible to avoid the loss of test animals which in 1080 tests for pregnancy reported by Ehrhardt and Zondek amounted to 115 animals in 20 instances and 4 of the 5 animals in 35 instances. As the marked individual variations make it necessary to use at least 5 animals for each test the death of only 2 or 3 of the animals is sufficient to render the test negative whereas if all of the 5 animals had survived the test it might have been positive since even 1 ecchymosis in 100 of a single animal is sufficient for a positive result. By detoxication of the urine the test is rendered applicable to every case. (Zondek, G.)

**Mack H. C.** The Aschheim Zondek Reaction for Pregnancy Results in 100 Cases. *S. G. C.* Oct. 1930, 1476.

The author reports the results of the Aschheim Zondek test for pregnancy in the cases of 53 women with normal intra uterine pregnancy, 35 non-pregnant subjects and 12 women with abnormal pregnancy. The test was positive in all of the cases of normal intra uterine pregnancy, negative in all of the cases of non-pregnant subjects except a woman with functional amenorrhoea and positive in all of the cases of abnormal pregnancy except a case of incomplete abortion.

The earliest diagnosis of pregnancy was made from a specimen of urine obtained three days after the expected date of menstruation. Four specimens were positive on the seventh day.

The false reaction obtained in the case of functional amenorrhoea is attributed to a technical error as only 1 of the 5 mice showed a positive reaction and the reactions of the other 4 were definitely negative. The negative reaction obtained in the case of incomplete abortion cannot be considered a false reaction since at the time the urine was obtained nothing remained in the uterus save a few fragments of necrotic placental tissue. Positive

reactions in cases of malignant chorionepithelioma represented specimens obtained at different times from 2 cases following hydatid mole

Mack draws the following conclusions

1 The Aschheim Zondek test is a very reliable laboratory method for the early diagnosis of interrupted intra uterine and extra uterine pregnancy hydatiform mole and malignant chorionepithelioma

2 Its simplicity permits it to be carried out without elaborate equipment

3 It has been proved a valuable adjunct to ordinary clinical methods in cases in which the diagnosis of pregnancy is difficult

ROLAND C CRON M D

Urdan B E Ectopic Pregnancy *Am J Obst & Gynec* 1930 **xx** 355

Ectopic pregnancy occurs most frequently before the age of thirty five but may occur at any stage of sex life Pelvic infection is an important causative factor Previous sterility does not seem to be of importance in the etiology as only 10 per cent of the cases fall into the group classed as cases of primary sterility

The two most common symptoms are pain and bleeding When these are associated with shoulder pain and fainting the diagnosis is almost absolute Amenorrhea lasting for from five to six weeks followed by bleeding and pain is most common but in a considerable number of cases prolonged bleeding occurs at the onset of the period and in many cases bleeding begins from one to three weeks after a normal period The amount of bleeding is less than in threatened abortion the blood is darker and generally does not clot External hemorrhage may be a manifestation of the death of the ovum and occurs when the uterus is beginning to cast off the decidua Curettings showing only decidua may be pathognomonic of extra uterine gestation

The temperature is rarely elevated above 101 degrees F The pulse rate is increased proportionately the average being from 90 to 110 The leucocyte count is of little aid in the diagnosis

Except in cases with severe hemorrhage the diagnosis is difficult In the cases reviewed by the author a correct diagnosis was made in only 58 per cent Any change in the rhythm of the menstrual flow with bleeding and abdominal pain should suggest extra uterine gestation A sedimentation time of thirty minutes or over is more apt to indicate extra uterine pregnancy than inflammatory adnexal disease In the differentiation of adnexal disease from extra uterine pregnancy the Aschheim Zondek test should prove of value For the differentiation of pelvic abscess from hematocele posterior colpotomy should be employed

After the diagnosis has been made operation should be performed immediately except in cases in which the hemorrhage has not been profuse and the general physical condition may be improved by pre operative treatment Blood transfusion should

be done if necessary In borderline cases transfusion is indicated to shorten the convalescence

In the series of cases reviewed the incidence of tubal rupture was 40.50 per cent and that of tubal abortion 48.31 per cent There were fourteen deaths a mortality of 2.95 per cent Five deaths were due to the anæmia and shock from severe hemorrhages two to secondary hemorrhage one to eventration two to intestinal obstruction and four to pulmonary complications Three of the deaths due to primary hemorrhage and one of those due to secondary hemorrhage occurred before the period when blood transfusion was employed in the treatment  
E L CORNELL M D

Santos M Transporting Patients with the Cataclysmic Hemorrhages of Ectopic Pregnancy (Da la question du transport dans le hémorragie cataclysmiques de la grossesse ectopique) *Bull Soc d'obst et de gynec de Par* 1930 **xiv** 47

In cases of hemorrhage due to the rupture of a tubal pregnancy transportation of the patient may be fatal Therefore in every case of suspected ectopic pregnancy or recent hematocele hospitalization should be recommended Of the author's 200 cases of ectopic pregnancy 20 were seen during hemorrhage or shortly after a hemorrhage In the cases of 8 patients it was necessary to operate in the midst of a cataclysmic hemorrhage Three of these patients were in a private clinic at the time the bleeding began and were operated upon immediately

If the patient is some distance from the hospital and if the roads are not good she should not be moved preparations should be made for operation at her home When the general condition is stationary after an hour of the attack the patient should on no account be moved as her condition will be made worse by transportation Palpation must be avoided as much as possible Even if it is done very carefully the patient must be closely watched

As a rule operation should be limited to salpingectomy Complete anesthesia is necessary The author advocates the use of ether for the majority of cases and of nitrous oxide mixed with ether for those in which the respiratory tract is in poor condition He avoids heterotransfusion when possible He has never used Thiers reinfusion but considers it rational when the hemorrhage is very recent and there are no clots  
PACE

Uzac Transportation by Health Service Aeroplane of Patients with the Cataclysmic Hemorrhages of Ectopic Pregnancy (Du transport dans les hémorragies cataclysmiques de la grossesse ectopique par avion sanitaire) *Bull Soc d'obst et de gynec de Par* 1931 **xv** 4

The author reviews the literature on the use of aeroplanes in the transportation of patients in need of surgical treatment Richet Jr Garsaux and Behague have reported experiments with depression in the pneumatic bell which is perhaps not completely analogous to the conditions of flying They noted

## OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Zondek B. The Technique of Testing for Pregnancy by Demonstrating the Hormone of the Anterior Lobe of the Hypophysis in the Urine I. Acceleration of the Reaction by Sedimentation of the Hormone II. Corroboration of the Urine Improvement of the Test for Pregnancy (Zu Methodik des Schwangerschaftstests durch den Urin und die Beschleunigung der Hypophysenhormonreaktion) I. Beschleunigung der Reaktion durch Sedimentation des Hormons II. Bestätigung des Urin-Tests durch Verbesserung des Urinschwangerschaftstests) A. N. 11. 1930. 1934.

The test for pregnancy developed by Zondek and Aschheim has no relation to the growth stimulating effect exerted on the uterus by the serum of pregnant women which was demonstrated by Binz as the latter may be produced also by other forms of stimulation. The Zondek and Aschheim test is based on the presence in the urine of the hormone of the anterior lobe of the hypophysis not the ovarian hormone and on processes taking place in the ovaries not in the uterus. Its disadvantages are that it requires more time an 1 as 6 or 7 per cent of urines are toxic it can be applied in only about 93 per cent of cases. The time may be shortened by injecting larger quantities of urine but only positive results are of value. Zondek therefore tried to obtain larger amounts of the hormone causing a quicker reaction by centrifuging the hormone from the urine.

Sixty six cubic centimeters of early morning urine were weakly acidified with acetic acid filtered mixed with 240 c cm. of alcohol shaken for five minutes and then allowed to stand for half an hour. At the end of that time the sediment which contained the hormone was separated by centrifugalization and shaken up for five minutes with from 30 to 50 c cm. of ether. The ether was then decanted and the residue taken up in 11 c cm. of water. The resulting solution contained the hormone. At the end of an hour there was obtained a pale yellow slightly opalescent solution which contained the hormone content of 6 times its volume of urine. This may be used even if it becomes cloudy.

With this solution the test animals were injected 4 times on the first day and twice on the second day (0.4 c.m. being used at each injection). After fifty seven hours they were killed and the ovaries examined for ecchymoses, the presence of which denotes a positive reaction. Corpora lutea are seldom present so early. As the reaction may be negative and only a positive reaction is of value the old method was usually employed simultaneously although it requires one hundred hours for its completion.

The quicker test should be used only when haste is necessary as in cases in which the advisability of operation for tubal pregnancy must be determined.

In the use of the older test the urine may be detoxified by passing it through a Berkefeld filter. However, a simpler and therefore better method consists in shaking it up with ether which takes up all of the toxic substances including folliculin and leaves the hypophyseal hormone. A rigid technique should be used. In the technique employed by the author from 30 to 40 ccm. of early morning urine are weakly acidified with acetic acid filtered and shaken up for three minutes with 120 ccm. of ether. The urine which is separated from the supernatant ether with a funnel is then allowed to stand for one hour or is placed on a water bath at a temperature no higher than 45 degrees C until all traces of ether have evaporated. The resulting detoxified urine is injected into the test animals in the usual 6 injections of from 0.3 to 0.4 ccm. In this manner it is possible to avoid the loss of test animals which in 1930 tests for pregnancy reported by Ehrhardt and Zonick amounted to all 5 animals in 20 instances and 4 of the 5 animals in 35 instances. As the marked individual variations make it necessary to use at least 5 animals for each test the death of only 2 or 3 of the animals is sufficient to render the test negative whereas if all of the 5 animals had survived the test it might have been positive since even oestrogen in ovary of a single animal is sufficient for a positive result. By detoxication of the urine the test is rendered applicable to every case. FLESCER (1)

Week 11 C The A chh Im Zond k Reaction for  
Pregnancy Rest Its In 100 Cases S g G) e b  
Ob 1 930 1 476

The author reports the results of the Aschheim Zondek test for pregnancy in the cases of 53 women with normal intra uterine pregnancy, 35 non-pregnant subjects and 12 women with abnormal pregnancy. The test was positive in all of the cases of normal intra uterine pregnancy, negative in all of the cases of non pregnant subjects except a woman with functional amenorrhoea and positive in all of the cases of abnormal pregnancy except a case of incomplete abortion.

The earliest diagnosis of pregnancy was made from a specimen of urine obtained three days after the expected date of menstruation. Four specimens were positive on the seventh day.

The false reaction obtained in the case of functional amenorrhoea is attributed to a technical error as only 1 of the 5 mice showed a positive reaction and the reactions of the others were definitely negative. The negative reaction obtained in the case of incomplete abortion cannot be considered a false reaction since at the time the urine was obtained nothing remained in the uterus save a few fragments of necrotic placental tissue. In the

infants who were born dead following the induction of labor with quinine disclosed intracranial injuries. This suggests that there was a mechanical difficulty in delivery and emphasizes the importance of care in the selection of cases for the induction of labor.

ABRAHAM A. BRAUER, M.D.

**Kontsek, B.** The Frequency of Forceps Operations and the Fetal Mortality (Die Häufigkeit der Zangenoperationen und die Fetus Mortalität). *Gyógysdts* at 1930 1:45.

As the results of the use of forceps are better the less urgent the indications, Mayer states they can be judged only by comparing the total child mortality with the total number of forceps deliveries.

Of 7,925 births reviewed by the author, the forceps were used in 222 (2.8 per cent). The infant mortality in all cases was 4.33 per cent, whereas in the cases in which delivery was effected with the forceps the infant mortality was 10.4 per cent and the maternal mortality 0.40 per cent.

In 14 cases in which the Kjelland forceps were applied at the inlet, 8 children and 1 mother died within a week after delivery. In 126 cases of medium high forceps application, there were 11 dead infants and 3 mothers died, respectively of eclampsia, heart failure and tuberculosis. Low application of the forceps was carried out in 70 cases with an infant mortality of 5.81 per cent and the death of 1 mother from heart failure.

As a rule, the use of pituitrin and episiotomy were substituted for low application of the forceps. Injuries to the child occurred chiefly in cases of high application of the forceps and were manifested by intracranial hemorrhage. The highest infant mortality (17.98 per cent) occurred in the cases in which the forceps were used on account of maternal indications. E. GOLDBERGER (G).

**Danforth, W. C. and Grier, R. M.** An Analysis of 124 Cases of Low Cervical Cesarean Sections. *Am J Obst & Gynec* 1930 xx:405.

Of 6,175 women delivered in the period from 1922 to 1929 inclusive, 124 were subjected to the low cesarean section. The operation was performed under ethylene anesthesia, although in the last two years all operations performed on account of pre-eclamptic toxemia have been done under local anesthesia.

Fourteen patients were operated upon because of a previous abdominal delivery. In the cases in which the authors have done a second low cervical section they have experienced little more difficulty in separating the bladder than at the primary operation. In some cases no difference was noted. As a rule, postoperative adhesions appeared to be fewer than after the classical section.

In 43 of the cases reviewed, the cesarean section was preceded by a test of labor. The average duration of labor preceding the operation was twenty-four hours. In 24 cases in which the membranes were ruptured, the average length of time was

eleven and three tenths hours. There was 1 death, a mortality of 0.8 per cent. This occurred about two hours after the operation following shock.

The authors conclude that the results in the past eight years show the newer technique to have decided advantages. In the cases in which it was used, the mortality rate averaged 2.3 per cent and wound infection occurred only twice. The indications were pelvic deformity, 66 cases; a previous cesarean section, 14 cases; pre-eclamptic toxemia, 17 cases; the repair of a third degree laceration, 3 cases; and miscellaneous conditions, 24 cases.

The chief single advantage of the low cervical technique is that it permits the safe use of a test of labor. As from 75 to 80 per cent of women with a relatively contracted pelvis will deliver their babies without abdominal section, it is of great value to possess a procedure which will permit a test and still allow a safe abdominal delivery in the cases of the minority who fail to bring the head into the pelvis.

E. L. CORNELL, M.D.

**Brouha, M.** The Prognosis of the Low Cesarean Section. The Immediate Results (Le pronostic de la césarienne basse. Suites immédiates). *Bruxelles méd* 1930 x:1110.

Brouha states that while the low cesarean section has many advantages over the classical operation, it is associated with grave risk, not only as regards primary mortality but also as regards morbidity. In the 125 cases in which he has performed it since 1925, the primary mortality was 4 per cent and the incidence of serious morbidity 2.5 per cent. The causes of death were infection in 3 cases and spinal anesthesia hemorrhage due to uterine atony associated with hydramnios and postoperative pneumonia in 1 case each. HAROLD C. MACK, M.D.

**Brindeau.** The Prognosis of the Low Cesarean Section. The Late Results (Le pronostic de la césarienne basse. Suites éloignées). *Bruxelles méd* 1930 x:1116.

Brindeau has found the end results of the low cesarean section to be better than those of the classical operation. The uterine scar being more elastic than that of the classical operation is less apt to rupture during subsequent pregnancies. Postoperative serous adhesions are seldom formed and never involve the intestine. Uteroparietal fistulae do not occur and vesical fistulae are very rare. The strong uterine scar allows a test of labor without danger. If another cesarean section becomes necessary, it is not rendered difficult by adhesions to the abdominal wall or the bladder. HAROLD C. MACK, M.D.

## PURPERIUM AND ITS COMPLICATIONS

**Brown, T. K.** The Incidence of Puerperal Infection Due to Anaerobic Streptococci. *J Obst & Gynec* 1930 xx:300.

At the time of delivery the authors instill into the vagina a solution consisting of 15 gm. of mercur

rochrome crystals and 5 c cm of half strength tincture of iodine in 500 c cm of glycerin. Since they began this practice in September 1926 the mortality from infection in cases of delivery at term and the morbidity from puerperal infection chiefly acute endometritis have shown a marked decrease.

Puerperal infection due to aerobic micro organisms is usually an introduced infection whereas infection due to anaerobic streptococci is usually endogenous. In the well organized obstetrical clinic infection due to anaerobic streptococcal infection is a greater problem than infection due to haemolytic streptococci and other aerobic micro organisms. A good technique in delivery can practically eliminate haemolytic streptococcal infection. In the present state of our knowledge the incidence of puerperal infection due to anaerobic streptococci will probably be reduced best by the use of an antiseptic preparation in the vagina at the beginning and during labor.

I. L. CORNELL M.D.

I. Ászló A. R. Newer Attempts at the Treatment of Puerperal Fever with Immune Serum (Néuherz. H. L. Lumb. H. d. L. g. des P. rperal. G. b. ) Gyógy. at 930 59

Forty women with puerperal fever were treated by intramuscular and intravenous injections of serum. When possible the injections were given on the first day of the condition. At first streptococcus serum and later polyvalent serum was employed. At the same time some of the women received medical treatment.

The effect of the serum was evidenced by slowing of the pulse rate, lowering of the temperature, and improvement in the general condition. Of the forty

women thirty four recovered and six died. In most of the six fatal cases the administration of the serum was delayed because of intercurrent ailments. Two of the fatal cases were treated in the period when only streptococcus serum was used, whereas staphylococci were cultured from the vaginal secretion.

Prophylactic treatment by the author's method appears to have given brilliant results. Immediately after operative interference the patients were given from 20 to 40 c cm of the serum. In all of the cases so treated the puerperium was afebrile.

SILIGE (G)

## MISCELLANEOUS

Cantarow A. Montgomery T. L. and Bolt N. W. The Calcium Partition in Pregnancy Parturition and the Toxæmias. S. G. Gy. & Obst. 93 1 469

The authors state that during the course of normal pregnancy and the first stage of labor there is a gradual diminution in the total serum calcium, a slight increase in diffusible calcium and a marked decrease in non diffusible calcium. The ratio of diffusible to non diffusible calcium increases steadily reaching a maximum in the first stage of labor. This disturbance is identical with that present in bronchial asthma and allied disorders.

The toxæmias of pregnancy are characterized by a marked decrease in the ratio of diffusible to non diffusible calcium due in most instances to an increase in the non diffusible fraction. This finding suggests a condition of diminished cell permeability with associated disturbance of tissue functions in the disorders.

ROLAND S. CROOK M.D.

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

**Streit A** Contribution to Functional Kidney Diagnosis (Beitrag zur funktionellen Nierendagnostik) *Zentralbl f Gynaek* 1930 p 1483

By injecting a 4 per cent solution of sodium bicarbonate intravenously at definite intervals and determining the hydrogen ion concentration of the separated urine Rehn and Guenzburg were able to diagnose faulty kidney function from the delayed or deficient excretion of alkali. When the hydrogen ion concentration is determined under physiological conditions an increase in the excretion of acid is found during the night. This is due to a decrease of the respiratory excretion of carbon dioxide. The kidney therefore assumes to a certain degree the function of the lung.

In general the curve of kidney function is dependent upon the diet. The gastric secretion also plays an important role in maintaining constant the isotonism of the blood. It is found however that deficient excretion of alkali may depend also upon extrarenal factors. Usually urinary alkalosis is found in nephrosis and urinary acidosis in nephritis.

The author simplified the test by administering the alkali orally and making his determinations from the vesical urine of both normal and nephritic pregnant women. The hydrogen ion concentration was determined every half hour by the indicator method. In thirteen gynecological control cases the hydrogen ion value was uniformly below 6.0. Also in the normal pregnancies the value in the fasting state was below 6.0. In cases of the kidney of pregnancy the value was near the neutral point. Following the administration of acid there was no increase of acidity; the findings therefore agreeing with those of Kraeuter. However the administration of alkalies to pregnant women resulted in a pronounced delay in the excretion of the alkali. Tests made during the puerperium resulted in a curve that remained almost exclusively on the alkali side.

KESSLER (G)

**Busch M** The Morphological Bases of Renal Insufficiency (Die morphologischen Grundlagen der Niereninsuffizienz) *Zischr f Urol. Sonderbd* 1930 p 44

In the methods of studying the kidney which have been used up to the present time the endeavor was made to obtain an insight into anatomical injury of the kidney from disturbances of partial elements of renal function. However as is claimed by Schwarz and Joseph the methods were not delicate enough for the definite demonstration of all renal diseases.

In this article Busch considers only the sequelae of urinary stasis as morphological bases for the determi-

nation of renal insufficiency. He states that errors and disturbances in the development of the urinary tract and obstructions due to disease in the walls of the efferent passages may lead to dilatation of the renal pelvis. Urinary stasis may be produced also in a purely mechanical manner by calculi and other foreign bodies. In some cases a neurological condition such as spina bifida may interfere with the escape of urine and lead to urinary stasis and dilatation of the renal pelvis.

Surgical insufficiency of the kidney is essentially a disturbance of the outflow of urine. Urinary stasis affects the kidney by changing its form through hydrostatic and hydrometric pressure and probably also indirectly by changing the circulation of blood in the kidney through pressure on the blood vessels. As a result the renal parenchyma is destroyed and the kidney becomes penetrated by connective tissue.

In the author's opinion the relationship between dilatation of the renal pelvis and destruction of the parenchyma is so close that conclusions as to the function of the renal tissue can be drawn from the degree of the dilatation. As in obstructed and static kidneys namely those with slightly and moderately dilated hydronephrosis intact areas still remain. Busch is opposed to too radical treatment and recommends early conservative measures. However when the obstruction can be removed surgically he favors early intervention. Haste is necessary also when infection is present or feared.

A ROSENBERG MD

**Grauhan M** The Anatomy of Renal Stasis (Zur Anatomie der Harnstauungsniere) *Zischr f Urol. Sonderbd* 1930 p 149

The clinical picture of hydronephrosis in the widest sense of the term is presented by two essentially different anatomical and genetic conditions of the kidney. The aseptic renal stasis of adults occurs with acquired obstruction to the outflow of urine (genital carcinoma in the female with secondary closure of the ureters, prostatic hypertrophy). The resultant macroscopic and microscopic renal change are very characteristic. Broadening and flattening of the papillae are followed by marked dilatation of the tubules of the medulla and cortex and finally complete destruction of the tubules and replacement of the latter by a very cellular interstitial tissue. The parenchyma is markedly reduced and the glomeruli approach each other so closely that they almost touch. There is a definite but not very marked dilatation of the renal pelvis. The kidney as a whole becomes somewhat smaller. In acquired bilateral stasis the dilatation of the kidney is never so extreme as in true hydronephrosis as the renal insufficiency which soon results terminates life and the



development of the process. In unilateral hydro-nephrosis due to urinary obstruction (ureteral stone, prostatic hypertrophy) removal of the obstruction is very often followed by quick and marked improvement.

In true hydronephrosis conditions are quite different. Very often the nature of the obstruction cannot be determined. Whereas in renal stasis of the acquired type the capacity of the dilated renal pelvis is at the most from five to ten times the normal and the weight of the affected kidney decreases to about half the normal in true hydronephrosis which is most common between the twentieth and thirtieth years of age the capacity of the renal pelvis is increased from fifty to one hundred times the normal and the weight of the kidney rarely falls so low as in the acquired type of hydronephrosis. Moreover the histological appearance of true hydronephrosis is quite different. The tubular apparatus is almost completely preserved. Even in the multilocular form with marked thinning of the parenchyma the tubules never completely disappear. Therefore in contrast to the acquired type of renal stasis considerable functional power remains in the parenchyma. The increase in length varies from one and one half to three times the normal.

The author differentiates three types of true hydronephrosis: (1) the so called ampullar form with marked dilatation of the so called anatomical renal pelvis; (2) the form with equal dilatation of the anatomical renal pelvis and the calyces and more regular enlargement of the renal pelvis; and (3) the multilocular form in which there is a conglomeration of numerous markedly dilated calyces and the dilatation of the anatomical renal pelvis as a whole is less marked.

The differences in the kidneys in these two types of hydronephrosis are characteristic of acquired renal stasis and renal stasis due to developmental disturbances. In the acquired type the parenchyma is destroyed as it is unable to yield to the pressure of the urine. In the true type the parenchyma undergoes hypertrophy which enables it to withstand degeneration for a long time; the growth capacity of the kidney is not destroyed. As analogous to these changes the author cites other forms of growth hypertrophy (circulatory changes in the extremities of young persons, fibroadenoma, venous stasis in thrombosis). He concludes that the so called typical hydronephrosis is often the result of a temporary urinary obstruction causing growth hypertrophy which thereafter persisted unchanged. He states that after the conclusion of the developmental period in true hydronephrosis there is a permanent condition which cannot be corrected even by removal of the cause. W. NKE (2)

Bumpus H. G. Jr. and Thompson N. G. J. Renal Tuberculosis. *Am. J. Surg.* 93, 545.

The teaching that renal tuberculosis is never primary but always secondary has so assimilated the dignity of age that it is seldom questioned. It has

rarely been considered that tuberculosis of the bones and joints or other extrapulmonary tuberculosis might have originated from the focus that affected the kidney, or that renal involvement might be coincident with tuberculosis of the spine or hip rather than secondary to it.

Bumpus and Thompson after an extensive review of the literature investigated the ultimate results in cases seen at the Mayo Clinic up to January 1, 1929. In such guinea pigs were given inoculations with urine obtained before operation from the supposedly normal kidney. There were 175 such cases. In 23 the test was a failure. In 109 the results obtained in the guinea pigs were negative and in 43 they were positive. Two of the 43 patients with positive tests died in the hospital and 11 died subsequently. Of the 30 others 13 had unquestionable involvement of the remaining kidney, 3 could not be traced and 14 were cured.

The authors reviewed also the clinical findings in cases of tuberculosis of the genital tract seen at the Mayo Clinic. In a review of 300 cases it was noted that dysuria was usually a symptom of tuberculosis of the urinary tract and was rare when the disease was confined to the genital tract. The presence of the bacilli of tuberculosis in the urine indicated renal involvement. In a recent review of 345 cases in which stained smears of urine contained acid fast bacilli it was found that 23 patients from whom a tuberculous kidney was removed and 5 others with renal tuberculosis for whom operation was regarded as inadvisable had no complaints referable to the urinary tract.

As many cases of extensive tuberculosis of the bones, joints and lungs as well as many cases of tuberculosis of the urinary tract are seen at the Mayo Clinic the authors hoped by reviewing all cases in which the bacilli of tuberculosis were found in the urine to discover evidence substantiating the newer ideas relative to renal tuberculosis.

They conclude that in renal lesions of the kidney frequently heal that it is impossible for a normal kidney to filter the bacilli of tuberculosis out of the blood stream into the urine; that the presence of the bacilli of tuberculosis in the urine almost always indicates renal involvement and that dysuria is a symptom of urinary tuberculosis and does not occur in tuberculosis confined to the genital tract.

Pa. ment r. F. J. Foord A. G. and L. ut n. gg. r. C. J. Gonococci. *1. Py. lon. ph. itis. J. U. I.* 93, 359.

In a review of the literature the authors found the reports of 64 cases of gonococcal infection of the kidneys. They divided 64 cases as not proved and classified the remaining 60 cases as possible, probable or proved. In the proved cases of which there were only 4, direct smears, cultures and fermentation studies were made.

From the proved cases the authors conclude that the cystoscopic procedure is not peculiar to gonococci.

infection that the pathological histology does not vary from that of pyelonephritis due to other bacteria and that the condition tends to become chronic and is very resistant to all types of treatment

HARRY W. PLAGEMEYER, M.D.

Mickey W. A. Hæmangioma of the Kidney  
*Brit J Surg* 1930 xviii 308

In the case of a patient sixty one years of age who developed severe bleeding from the right kidney a diagnosis of tumor of the lower pole of the kidney was made because the pyelogram showed a filling defect of the inferior major calyx and the related minor calyces. Two days later the kidney was removed.

The pathologist found an angioma in the pelvis the border of which extended around the wall of the superior major calyx and into the minor calyces of the inferior major calyx. The filling defect was due to a blood clot.

The author has found seventeen renal angiomas reported in the literature—seven occurring in the pelvic wall, four in the renal cortex and six in the pyramids. In the first group profuse hæmaturia was the chief sign. In the second and third groups hæmaturia was present but did not constitute a surgical emergency.

The diagnosis of hæmangioma of the kidney is very difficult. Nephroptosis, infections, nephritis, stone and subepithelial pelvic hæmorrhage must be excluded. The pyelogram may show a filling defect due to a clot as in the author's case but will more often be negative. Renal function may not be impaired. Unless the case demands emergency surgery conservative methods of treatment are indicated.

The presence of an angioma may be suspected when all other possible lesions are ruled out and the onset of bleeding is acute and so severe as to demand surgical operation.

Superficial angioma of the parenchyma rarely require surgical treatment. Tumors or varices of the papillæ may be cured by papillectomy or nephrotomy. In cases of accessible small angioma electrocoagulation may be tried. If hæmorrhage is so severe as to endanger life and the tumor is large as in the case reported nephrectomy is indicated provided the other kidney is normal.

CLAUDE D. PICKRELL, M.D.

Ljunggren E. Grawitz Tumors *Acta chirurg Scand* 1930 l Supp xvi

This report is based on fifty eight cases of Grawitz tumor of the kidney. The pathological classification, etiology and symptoms are discussed. Ljunggren considers varicocele and fever of no aid in the early diagnosis. Tumor cells never occur in the urine in these cases. Even by elaborate methods the author was unable to obtain adrenalin from Grawitz tumors. In his opinion an increased blood pressure cannot be considered a characteristic sign of tumors of this type. Of chief aid in the diagnosis are early cystoscopic and pyelographic studies. In

seven cases in which the diagnosis of kidney tumor was missed an exhaustive urological examination was not done. Exploratory operation to determine the source of hæmaturia is today a rare procedure.

A careful statistical study with regard to the prognosis has been made. Metastases may occur from seven to ten years after removal of the kidney tumor. The author states that there is no adequate pathological criterion on which to base a prognosis with regard to the duration of life after nephrectomy for renal neoplasm. In all cases with gland metastases or tumor infiltration of the renal fat the prognosis is unfavorable. In thirty nine of the cases reviewed tumor thrombi were found in the renal vein. Seven of the patients with such thrombi lived over five years clinically free from recurrence. So far postoperative radium and X ray treatment have proved of little value. Metastases have been found in all organs except the thymus. Their most common sites are the lungs and bones.

Anatomical and X ray studies have been made of the changes in the kidney pelvis caused by Grawitz tumors. Two cases of pedunculated Grawitz tumors are cited.

Studies of the origin of hæmaturia in cases of Grawitz tumor were based on the pathologico-anatomical examination of the material. A rupture of the tumor into the kidney pelvis can usually be established. Closure of this portion of the pelvis by connective tissue organization and its subsequent rupture may explain the intermittency of the hæmaturia. Some tumors do not cause hæmaturia because the passage ways of the parts into which they rupture are obstructed. It is believed that bleeding into the renal parenchyma and into the mucous membrane of the renal pelvis may cause hæmaturia provided operative trauma to these tissues can be excluded. It is doubtfully suggested that hæmaturia is often the result of venous stasis in the kidney tissue and the mucous membrane of the renal pelvis caused by pressure of the tumor. In some cases it may be caused by inflammation of the pelvic mucous membrane associated with the tumor.

The monograph contains numerous illustrations, a complete report of the fifty eight cases reviewed and a six page bibliography. HARRY CULVER, M.D.

Scholl A. J. Three Cases of Carcinoma of the Kidney Atypical in Type *Surg Clin North Am* 1930 x 115

Scholl reports 3 cases of alveolar carcinoma of the kidney. Of a series of 104 renal carcinomata seen at the Mayo Clinic only 32 were of this type. The rest belonged to the hypernephroma group. Alveolar carcinomata are highly malignant, invade the pelvis early and break through the renal capsule.

Histologically the neoplasms tend to reproduce the tubules of the adult kidney resembling the renal parenchyma. The structure varies from that of the well formed alveoli to areas in which there is very little differentiation, the cells being matted

together with only a small amount of intervening stroma

The first case reported by Scholl was characterized by high fever during the primary and recurring stages with invasion of the renal pelvis. A review of the literature shows that Israel was the first to call attention to fever as a symptom of malignant tumor. Israel found fever in 18 per cent of his cases of hypernephroma and attributed it to the formation in the tumor of specific pyrogenic substances. Of 367 cases of carcinoma of the kidney treated at the Mayo Clinic fever was present in 11 per cent.

Of 200 cases of carcinoma of the kidney studied by Goulds at the Mayo Clinic involvement of the renal vein was found in 45. Nine of the 45 patients died immediately after operation. Of 31 who were followed up 22 died in less than two years and 5 were alive from three to fourteen years later.

The second case reported by Scholl presented unusual difficulty because of a nephrectomy performed twenty years previously. In the third case there was a large carcinoma of the kidney without local extension which produced very few symptoms.

MALNICE MELTZER M.D.

**Pericini P.** An Experimental Study of the Changes Produced by the Presence of a Foreign Body in the Ureter Remains After Nephrectomy (Stuhlmann's study on the influence of the foreign body on the ureter). *Ann. Surg.* 1933, 97, 445.

The author briefly reviews the literature which deals with the pathological anatomy and physiology of the ureter remaining after nephrectomy. The ureter persists as a tubular structure for at least three years. After that length of time its lumen is obliterated. During its existence as a tube it shows fairly rhythmic peristalsis. The nature of this peristalsis indicates that it is not dependent upon impulses from the pelvis of the kidney.

In the experiments reported by Pericini the condition was produced by a calculus remaining in the ureter after nephrectomy, complicated by introducing a fusiform piece of glass into the upper end of the ureter and in which the above conditions were maintained for twenty days to seven months after the animal was killed and examined.

In several instances the glass was found in the juxtapositional portion of the ureter indicating that contraction persisted in the ureter for some time. The ureter attempted to expel the foreign body soon after its introduction. The larger the glass body the farther it was moved indicating that the ureteral activity was directly proportional to the amount of distention of the ureteral wall.

Microscopic studies of the ureter showed that at the level of the foreign body the thickness of the mucosa was considerably increased and the muscle layer was compressed and atrophied. In the segments immediately above and below this level the muscle layer was well conserved but distally it was

atrophied. The atrophy was probably secondary to stasis which stimulates connective tissue proliferation.

This experimental work indicates that in aseptic cases in which nephrectomy is performed a simultaneous ureterectomy or ureterolithotomy for stone is unnecessary.

A. Louis Rost M.D.

## BLADDER URETHRA AND PENIS

**Pratt J.** Inguinal Cystocele (Contributed to the literature of the cystocele). *Cl. Surg.* 1933, 786.

Fifty cases of inguinal cystocele are reported. Cystocele is of the inguinal variety in 90 per cent of cases. The bladder is found involved in 3 per cent of all inguinal herniae operated upon.

If the theory of urologists regarding the origin of diverticula of the bladder is correct the theory that inguinal cystocele is the result of herniation of a vesical diverticulum is untenable. It is more logical to suppose that a herniated portion of the vesical wall can assume the characteristics of a diverticulum if the hernial ring is inelastic. An important factor in the formation of inguinal cystocele is the pre-vesical fat.

In doubtful cases of inguinal cystocele a cystoscopic and X-ray examination should be made before operation and the bladder distended with fluid at the time of operation after section of the hernial ring. In cases of recurrent inguinal hernia it has sometimes been found that the cystocele was ligated at the first operation.

ANTHONY R. CAMERO M.D.

**Schacht F.W.** Vesical Diverticulum in the Female. *J. Urol.* 1933, 27, 393.

Diverticula of the bladder are rare in the female. They are usually classified into the false and the true types. The false diverticula are the result of perivesical postoperative deformity of the bladder, patent urachus, malformation of the bladder or inclusion of the bladder in a ventral or inguinal hernia. Among the true diverticula 2 types are generally distinguished. One is the result of faulty development of the wall of the bladder whereas the other which usually appears later in life gives evidence of some form of obstruction in the urethra at the neck of the bladder. The possibility of classifying diverticula into congenital and acquired types on the basis of their histological structure has not been proved.

Various theories have been suggested regarding the nature and method of formation of the vesical diverticula. However, there are 4 principal views. According to one theory diverticula are the result of a combination of acquired and congenital factors. According to another they are chiefly of congenital origin. According to a third they are for the most part acquired and according to a fourth they may be either entirely congenital or entirely acquired.

Schacht and Crenshaw reviewed 95 cases of diverticulum of the bladder in the female which have been reported in the literature. The ages of the

patients ranged from thirteen to eighty years. Of 56r diverticula of the bladder seen at the Mayo Clinic in the period from 1910 to 1929 only 18 occurred in females.

In 13 of the 18 cases of vesical diverticula in the female seen at the Mayo Clinic the diverticula were of the true type and in 5 they were of the false type. A urethral uruncle was present in 3 cases, chronic granular urethritis in 1 case and a cyst at the neck of the bladder in 1 case. Of the false diverticula 1 was the result of injury at childbirth and the 4 others were due to operative procedures in the pelvis and abdomen.

The severity of the symptoms depended to a large extent on the presence and degree of cystitis, trigonitis or urethritis or such complications as vesical calculus or neoplasm. In 4 cases there were few if any symptoms referable to the urinary tract.

In approximately 70 per cent of cases of diverticulum of the bladder in the female the patient is between thirty five and sixty five years of age.

**Joly J S.** The Treatment of Vesical Papillomata by Cystoscopic Diathermy. *Proc Roy Soc Med Lond* 1930 xxi 1557.

Joly compares his results in the treatment of vesical papillomata before and after the introduction of cystoscopic diathermy. He states that malignancy arises only in growths that have remained single. Multiple tumors do not invade the bladder wall no matter how luxuriant they become. He recognizes numerous variations between benign and malignant growths and believes that the term malignant papilloma should be abandoned.

Before cystoscopic diathermy Joly treated 39 cases of vesical papillomata by excision. In 30 cases of single tumors there were 4 recurrences. Of the 9 cases of multiple tumors there was a recurrence in all.

The cases he has treated since the introduction of cystoscopic diathermy are divided into the following 3 groups:

1 Single tumors. Of 26 cases in which he was able to obtain reliable information regarding the end result five years after completion of the treatment a recurrence developed in 6. In 1 it developed after fourteen years.

2 Multiple growths. Of 28 cases of multiple tumors small recurrences were found from six to twelve months later in all. As these recurrences tend to diminish after repeated treatments the patient can be assured of freedom from trouble after three or four years.

3 Recurrences after open operation. These usually occur near or in the suprapubic scar and are out of reach of an electrode passed through an ordinary catheterizing telescope. For this type of case the author has devised a special electrode carrier. Multiple recurrences after open operation are very difficult to control but Joly attempts to keep the patient free from symptoms by repeated treatments. He has patients whom he has cystoscoped

more than 50 times and 2 whom he has cystoscoped more than 100 times.

Joly uses cystoscopic diathermy whenever cystoscopy can be done and there is no evidence of infiltration of the bladder wall. Patients with severe hemorrhage or clot retention require cystotomy. The decision as to whether a particular tumor is suitable for cystoscopic treatment is at times difficult. A pedunculated tumor is tested for mobility. The electrode is thrust into the tumor and the current passed for a few seconds. If the tumor breaks away when the electrode is withdrawn it should be considered malignant. All sessile tumors should be considered malignant unless they occur after operation. Some sessile tumors recurring after operation are benign but if there is any doubt they should be excised.

The author then discusses in detail the instrumentation and technique for cystoscopic diathermy. He does not employ general anesthesia but states that while it is associated with danger it permits the use of a more powerful current which decreases the number of treatments necessary.

ANDREW McNALLY M D

## GENITAL ORGANS

**Young H H.** The Advantages of the Perineal Route in the Treatment of Various Diseases of the Prostate. *Proc Roy Soc Med Lond* 1930 xxi 1689.

This article is a review of the author's well known technique of perineal surgery in the treatment of the prostate and seminal vesicles. Young states that while suprapubic prostatectomy is radically curative and technically satisfactory the perineal operation is unquestionably safer. He emphasizes the importance of rectal palpation of the prostate as a routine procedure in all physical examinations and states that malignancy should be suspected when even small areas of great induration are felt.

He believes that the important rôle played by the trigone in the physiology of micturition has not yet been fully recognized by physiologists. Micturition is initiated by contraction of the trigone which opens the external sphincter and allows the detrusor muscles to force the urine out through the urethra.

In describing his technique for perineal prostatectomy Young states that excellent anesthesia is obtained from a single injection of 20 c cm of a 3 per cent solution of procaine into the sacral canal. The patient is placed on the table with the perineum elevated and the pelvis bent forward at the sacroiliac joint. The incision and the various details of the exposure of the prostate and seminal vesicles are described. When the operation is finished a catheter is inserted in the urethra and a Davis drainage bag introduced through the prostatic wound into the bladder and blown up. In this way all bleeding is stopped.

The mortality of perineal prostatectomy in 1577 cases was 3.6 per cent.

Young has found that about 20 per cent of patients who present themselves with symptoms of prostatic obstruction are suffering from carcinoma of the prostate. He emphasizes the importance of early diagnosis and early operation. Of special aid in the diagnosis is a peculiar increase in induration when the prostate is palpated with a sound or the cystoscope. The author's radical operation for complete removal of the prostate and the prostatic urethra with anastomosis of the bladder to the membranous urethra is described. Its mortality is 4 per cent. When it is done early enough a cure with good urinary control is obtained in a high percentage of cases. Young states that in prostatic carcinoma death is usually due to metastases.

A radical operation for genital tuberculosis is also described. The author believes that removal of the tuberculous epididymis is not enough. Of 14 patients subjected to his operation 9 were found in good condition after five years, 1 after four years, 3 after three years and 1 after one year.

The author's perineal approach is used also in the treatment of retention cysts of the prostate, diverticulum of the posterior urethra, rupture of the posterior urethra, incontinence of urine, recto-urethral fistula, and impermeable urethral stricture.

The usual pre-operative preparation includes gradual evacuation of the urine, studies of the blood chemistry, and tests of renal function. In cases of deep bladder and prostatic infections, cases of fever with or without blood infection, and cases in which incision and drainage are indicated, intravenous injections of a 1 per cent solution of mercurochrome are given.

MAURICE MELTZER, M.D.

### MISCELLANEOUS

De Keer maecke Pseudo Urinary Patients (Les  
1 u ) J d l m d i ch 193  
9

It is not unusual for patients to come to the urologist with genito-urinary symptoms not based on an anatomical lesion of the genito-urinary organs. Guyon calls them pseudo-urinary patients. The symptoms differ in the two sexes, but in both there is hyperaesthesia with more or less acute spasm of long duration caused by disequilibrium of the vegetative nervous system in the pelvis which results in disturbances in the function of the bladder and rectum with sequelae such as pain, retention or the involuntary passage of urine, constipation, hemorrhoids, fissure of the anus and pruritus. In children the condition causes nocturnal and diurnal diuresis and constipation and the involuntary passage of feces. Women suffer from stranguary, vaginismus and pain in the abdomen, the lower part of the back, and the buttocks. In men there is retention of urine with false stricture, abnormal sensations in the urethra and the region of the anus and perineum, priapism, spermatorrhoea and pain and spasm during and after coitus. The treatment is massage.

ALFRED MORO, M.D.

Molina R and Ruiz J B Indications for Deriva-  
tion of Urine (I dic cone de la n a n d  
onna) J d c Hasana 1930 133

Derivation of the urine is being practiced more and more in genito-urinary surgery. Renal derivation by nephrostomy is done in hydronephrosis and pyonephrosis. Ureteral derivation by ureterostomy may be lumbar or iliac. Derivation by implantation of the ureters into the intestine is a more serious operation and its late results are generally unfavorable.

Derivation of urine may be temporary or permanent. Temporary derivation is indicated in certain operable vesicovaginal fistulae as it improves the operative prognosis. Permanent derivation may be practiced on the kidney. For example at operation on a woman with a cancer of the uterus and compression of the ureters a double nephrostomy may be performed to prevent anuria. Permanent derivation by ureterostomy is done to relieve pain in the bladder in cancer or tuberculosis. Derivation of urine is resorted to also in cases of severe traumatic or inflammatory stenosis of the urethra as it renders internal urethrotomy possible later. In perurethritis and fistula it allows the removal of the indurated masses of tissue and disinfection of the fistula. In traumatic rupture of the urethra it facilitates the suturing of the wound and favors healing. It is indicated also in cases of urethrocutaneous fistulae, obstinate cases of chancres of the meatus in which healing is prevented by irritation from the urine, and cases in which an autoplasmic operation is to be performed.

ADREY G MORO, M.D.

Barbillion P The Treatment of Acute Gonorrhea (I  
thé apout q d n a la bl r g  
a gub) J d l m d i h 93 16

It is very difficult to judge the results of any treatment of gonorrhoea. Mild cases may be cured spontaneously whereas severe ones resist all forms of treatment. If a case of acute gonorrhoea is left alone for two weeks which has very distressing results for the urethra, it can be cured much more quickly by any method of treatment than if treatment is begun at once. A sort of auto-accrual seems to take place during this period. If a first treatment is ineffective and another is substituted for it and is successful, the second one is not necessarily the better procedure. It is probable that the first one—if a good treatment for gonorrhoea—would have given equally good results if it had been continued long enough as time is a very important factor.

After trying many other treatments the author always returns to permanganate irrigation. Vaccination alone does not seem to be effective in gonorrhoea. Colloidal vaccines are equal to the other vaccines in acute gonorrhoea and superior to them in complications. Local vaccination with killed bacterial vaccines seems to be better than the methods previously employed. An oily solution of santalol can be given by intracutaneous injection.

Santalol with salol and urotropin by mouth has a good effect on the pain and discharge but the disease often lasts longer than usual under this treatment and irrigations finally become necessary.

Next to permanganate irrigation the author thinks the best treatment is the administration of santalol salol and urotropin by mouth with the intravenous injection twice weekly of 5 c.c. of a 2 per cent solution of gonacrin. The results are decidedly better than those obtained with gonacrin alone.

No treatment of gonorrhœa is sure to prevent complications. The incidence of posterior urethritis

is about the same after all methods of treatment. Though chemotherapy does not always prevent orchitis and prostatitis it is obvious that in hyperacute cases it is attended with less risk to the patient than irrigations poorly given.

There does not seem to be any standard treatment for gonorrhœa at present. Each case should be treated according to the local and general condition, the amount of time that can be given to it, and the patient's occupation. The patient should be watched for the development of para-urethral fissures, folliculitis, and prostatitis and not discharged until he is thoroughly cured. AUDREY G. MORGAN, M.D.

# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Pomeranz M M Roentgen Diagnosis of Bone Tumors *J Bone & Joint S* 1933 13: 705

In osteomyelitis the following changes are demonstrated: (1) areas of bone destruction varying from small abscesses to involvement of the entire bone; (2) sequestration; (3) irregular periostitis parallel with the long axis of the bone; and (4) medullary cortical and periosteal sclerosis.

Benign tumors are localized to the medullary cortex or periosteum and have sharply limiting borders. They cause definite expansion of the bone without periosteal stripping. They develop slowly and do not involve the soft tissues.

Malignant tumors show irregular invasion with simultaneous involvement of the cortex, medulla, and periosteum. They grow rapidly in and about the bone and involve the soft tissues. The periosteum is stripped and bone is deposited perpendicularly to the shaft of the bone.

ELTON J BERKMEISER M D

Fraser J Tumors of Bone *Edinburgh J* 1933 33

Fraser prefaces his discussion of bone tumors by a review of the anatomy and physiology of bone. His classification of bone tumors is similar to that of the American Sarcoma Registry. He reports cases representative of the different groups and discusses the pathogenesis, symptoms, and treatment of each type. The treatment includes X-ray and radium irradiation and the use of Coley's fluid in addition to operation. Excision is often preferable to amputation.

WALTER P BLOUNT M D

Pfemister D B Repair of Bone in the Presence of Aseptic Necrosis Resulting from Fracture, Transplantations, and Vascular Obstruction *J Bone & Joint S* 1933 13: 769

Aseptic necrosis of bone may result from various factors such as circulatory disturbances, trauma, chemicals, and radium irradiation. The repair of the damaged area varies with the causative agent and the functional stimulation.

In necrosis produced by infection complete absorption occurs if the area is small and sequestration if the area is large.

In aseptic necrosis of bone resulting from circulatory disturbances an ingrowth of vessels and osteogenic tissues occurs from the living bone to the necrotic area if the necrotic bone is approximated to the living bone and by this creeping substitution the old bone is replaced by new bone.

ELTON J BERKMEISER M D

Forkner C E The Synovial Fluid in Health and Disease *J Lab & Clin Med* 1930 18: 87

The purpose of the study reported in this article was to collect, classify, and evaluate the available data on synovial fluid in order to ascertain first whether the joint exudates can be utilized for clinical purposes and second whether further studies on the fluid of joints are likely to be of value and if so in what direction such investigations should be carried on.

There is considerable uncertainty regarding the origin of the synovial fluid. However, the adequacy of the synovial fluid for the nutrition of cartilage from the standpoint of carbohydrate and energy yielding content is clearly indicated.

The article contains seven tables based on the author's observations and reports in the literature. Table 1 gives the physical and chemical properties of human synovial fluid under normal conditions and in the presence of general edema. Various diseases found at autopsy: non-specific effusions, acute synovitis, bursitis, septic arthritis, gonorrheal arthritis, syphilitic synovitis, and Charcot's joints. Table 2 gives the physical and chemical properties of the fluid in traumatic effusion, chronic arthritis, acute rheumatic fever, tuberculous arthritis, arthritis of serum disease, and intermittent hyarthrosis. Table 3 summarizes the biological properties of human synovial fluid under normal conditions and in simple effusion, non-specific hydrops, intermittent hyarthrosis, traumatic effusion, traumatic arthritis, and arthritis of dysentery. In Table 4 are given the biological properties of the fluid in chronic arthritis. In Table 5 the biological properties of the fluid in septic arthritis, gonorrheal arthritis, tuberculous arthritis, and acute rheumatic fever. In Table 6 the biological properties of the fluid in syphilitic arthritis, syphilis without arthritis, and Charcot's joints. Table 7 summarizes the findings given in the six other tables.

From the data in these tables the following conclusions are drawn:

1. A sugar content under 60 mgm. per 100 ccm is almost always associated with infection of the joint.

2. A sugar content under 45 mgm. per 100 ccm is strong evidence in favor of the presence of pyogenic organisms.

3. A pH value of approximately 7.0 is strong evidence in favor of the presence of bacteria.

4. A pH value of under 7.0 is almost certain to be associated with the presence of pus-producing organisms.

5. An icterus index of over 5.5 is practically always a sign that toxemia is playing or has played an important rôle in the etiology.

6 A positive Wassermann reaction in the joint fluid associated with a negative reaction in the blood is strong evidence of syphilitic arthritis

7 A positive Wassermann reaction in the joint fluid with a positive reaction in the blood may or may not be associated with syphilitic arthritis

8 A positive Wassermann reaction in the blood associated with a negative reaction in the synovial fluid probably represents good protection against the ultimate development of syphilitic joint disease

9 A leucocyte count of 11 000 or more cells per cubic millimeter associated with 60 per cent or more of granulocytes in the synovial fluid of a patient with chronic non specific arthritis is likely to be associated with the presence of a positive culture of attenuated organisms

10 A leucocyte count in the joint fluid of 5 000 or fewer cells per cubic millimeter together with less than 50 per cent of granulocytes in a patient with chronic non specific arthritis is likely to be associated with a negative culture of the fluid

11 The presence of large numbers of red blood corpuscles in the synovial fluid of a patient with arthritis is evidence against chronic non specific tuberculous syphilitic or acute septic arthritis and suggests that trauma was the etiological factor

12 Animal inoculation is of value in the diagnosis of syphilitic arthritis occurring early in the disease

In conclusion the author states that it is very significant that attenuated organisms can be cultured from a high percentage of cases of chronic non specific arthritis. The recent contribution of Shands in which the same types of organisms have been grown from cases of Charcot joints from cases of traumatic arthritis and from cases of intermittent hyarthrosis tends to support the theory that in the etiology of arthritis several factors are involved. One factor is undoubtedly trauma and another is the invasion of organisms

A study of the synovial fluid in arthritis is of great aid in differential diagnosis. It yields information which approaches in importance that obtainable from the study of cerebrospinal fluid

ROBERT V FUNSTON M D

Blencke H. Sport Injuries of the Joints (Ueber Sportschaden der Gelenke). *Zentralbl f Ch* 1930 p 1167

In 1923 Baetzner reported that even in young gymnasts and athletes he had frequently found severe chronic joint affections which he attributed to their physical exercise. He stated that excessive one sided sport activities cause not only functional weaknesses but also anatomical changes. The tissues undergo structural changes the muscles are torn and the joint cartilages become inelastic and broken and peel off. The cartilage defects so produced are followed by reactive changes in the bone with the development of an affection similar to arthritis deformans which Baetzner described as a sport injury of the joint

The opposition which his theories provoked led Baetzner to make roentgen examinations of the joints of athletes competing in the ninth Olympiad at Amsterdam. In compliance with Baetzner's request Heiss made 358 roentgenograms of the joints of 159 athletes of various types from different countries. In 4 instances he found marked changes involving especially the knee foot elbow and shoulder

Recently Knoll opposed Baetzner's view that these changes in the joints are the manifestation of a primary idiopathic arthritis deformans due to tissue changes from sport trauma. He believes that they are more probably the result of previous joint traumata and points out that in the development of joint conditions such factors as the constitution inherited predisposition and internal secretions are of importance. He undertook the systematic roentgen examination of 40 ski jumpers among whom were the best in Switzerland. In these examinations he found roentgenologically demonstrable changes in the skeleton only occasionally and concluded that they were not the result of trauma

The author reports 10 cases from his own practice which presented evidence suggesting that in tense sport activities had injured the affected joints. He concludes that the constant activity of professional football players who indulge in their competitive sport every Sunday is conducive to premature destruction and wearing out of the joints and their tissues and he believes that Baetzner's theory applies not only to the severe types of sport activity but also to the moderate types. On the other hand he agrees with Knoll that a number of joint injuries are caused primarily by trauma. The trauma need not cause fractures and luxations in many instances it is more probable that it produces minute changes in the joint borders the cartilages and the tendon insertions. Also of importance in the development of sport injuries is the fact that the injured athlete usually returns too soon to his sport. The resumption of sport activities after a sport injury usually occurs sooner than the resumption of work after a similar accident at work. After the athlete has recovered from his accident sufficiently to resume his vocation a considerable period of time should elapse before he resumes his sport activities. Sports should be resumed only after healing and strengthening of the injured member have progressed further. When this precaution is observed many sport injuries of the joints will probably be avoided.

ZILLMER (2)

Ely L W. Chronic Arthritis Its Classification Etiology and Pathology with an Outline of Its Rational Treatment. *J Lab & Clin Med* 1930 1 64

The author distinguishes two main types of chronic arthritis. Type 1 is due to bacterial infection which can be demonstrated definitely or is strongly suggested by characteristic changes. The cause of Type 2 is unknown



In Type 1 the chief feature is a proliferative inflammation in the synovial membrane. To this may be added a proliferative inflammation in the bone marrow in the immediate vicinity of the joint. The inflammation may start in either tissue and spread to the other. When it begins in the joint tissues themselves the synovial membrane becomes thickened, infiltrated and villous. As a rule a serous, bloody, fibrinous, flocculent or purulent exudate is poured out into the joint cavity. The capsule also thickens. In some cases the proliferation is slight, free fluid cannot be demonstrated, and adhesions form in the synovial membrane. The cartilage becomes thinned and at its circumference its place is taken by the synovial membrane which spreads out over its surface suggesting a perichondrium. Because of interference with function the cartilage becomes fibrous. In severe cases it may be bound to the synovial membrane and the opposing cartilage by adhesions. Under such circumstances the joint cavity is replaced by a mass of scar tissue and fibrous ankylosis results. In some infections the ankylosis becomes bony. When the disease starts in the marrow it gains the under surface of the cartilage and the granulations absorb or kill the bone trabeculae as they spread.

The chief symptoms of this type of arthritis are those of inflammation in any organ—pain, swelling, interference with function, redness and an increase in the local temperature. There is a fairly constant relation between the symptoms and the anatomical change. The pain is usually greater when the bone is involved than when only the synovial membrane is affected. Deformities are the rule. Constitutional symptoms may be present or absent depending upon the nature and severity of the infection.

The roentgenogram shows swelling of the soft parts, thinning and irregularity of the joint space and effects on the bone. Bony spurring and lifting are absent.

The condition is a disease of the earlier periods of life.

The author discusses the differential diagnosis and treatment of arthritis of Type 1 due to different types of infection.

Chronic arthritis of Type 2 is characterized by a pitting of bone and cartilage at the circumference of the joint cavity along the line of attachment of the capsule—so-called spurring and lifting. In the author's opinion the first and fundamental change is a septic necrosis in the marrow near the joint. He believes that this type of arthritis is due to protozoa, probably one or several of the so-called harmless varieties which gain access to the circulation through the pin bone at the roots of dead teeth. In support of this theory he states that the stools of a large percentage of patients with arthritis of Type 2 contain protozoa. The joint cartilage becomes fibrous and calcified, it degenerates and then disappears or erodes, and smaller areas leaving the underlying bone bare. This bone becomes thickened

and dense, eburnated, ivory like and grooved in the line of joint motion and prevents the communication of the marrow spaces below with the joint cavity. The changes in the synovial membrane are the result of a long series of mechanical insults. They are quite different from the so-called lymphoid proliferation of arthritis of Type 1. The membrane becomes greatly thickened from the production of loose mesothelial fibrous tissue and fat. It loses its smooth glistening surface and becomes a mass of greatly enlarged villi. Cysts are sometimes formed in the marrow near the bone ends.

This disease is a condition of middle and later life and occurs in persons with dead teeth. The inflammation is of a lower grade than that of arthritis of Type 1. There is no correspondence between the amount of anatomical change and the symptoms and physical signs.

The author discusses in particular chronic arthritis of the spine of Type 2. He believes that in many cases of so-called neuritis, fibrositis, myositis, fasciitis and radiculitis the condition is really spinal arthritis.

In the treatment of chronic arthritis of Type 2 the author first has all dead teeth extracted. Sometimes the symptoms then subside. If they do not he gives a course of nearsphenamine and emetin.

Nicola A. Humerus Varus (L. m. a. o.) Cl.  
h. 93, 7, 914

The author reviews the literature on humerus varus and reports three cases. He states that the occurrence of the condition in adolescence is rare; only eight cases having been recorded to date.

The pathological changes of humerus varus are limited to the metaphysis of the humerus, the rest of the skeleton being normal. The condition is a definite clinical entity and has nothing in common with other types of deformities of the humerus in persons afflicted with constitutional bone dystrophies. It is the result of the gradual breaking down of the wall of a unilocular cyst of the metaphysis of the humerus. The breaking down of multilocular cysts does not produce it.

In cases of cretinism, microcephaly, rickets and achondroplasia one sees frequently deformities of the upper epiphysis of the humerus which alter not only the angle of inclination but also the angle of torsion on the angle of direction and the general aspect of the humerus. Similar deformities are found throughout the skeleton. In such cases all of the deformities can be attributed to a single dystrophic cause and humerus varus is probably the least important manifestation of a generalized pathological process which inhabits skeletal and mental development. To continue to classify these dystrophic forms in the same group with cystic humerus varus will only perpetuate the existing confusion of the varieties.

Inflammation of humerus varus should be considered a deformity secondary to a primary osteomyelitic process.

ANTHONY R. CAMERON, M.D.

Rigler L G Ude W H and Hanson M B  
Paravertebral Abscess an Early Roentgen Sign  
of Tuberculous Spondylitis *Radiology* 1930  
xv 471

Paravertebral abscess which occurs in about 80 per cent of cases of tuberculosis of the thoracic spine is generally considered a late manifestation of the disease. As a rule it is merely confirmatory of a diagnosis previously made on the basis of involvement of the vertebral bodies and intervertebral disks. However in some cases it may be a very early sign of the condition and in others it may be a sign of a very benign form of tuberculosis which fails to cause enough destruction to invade the disks or produce the typical collapse of the vertebral bodies.

The recognition of paravertebral abscess depends upon the finding of a spindle shaped shadow in the anteroposterior roentgenograms. This shadow has a bilateral symmetrical appearance and is frequently overshadowed by the heart. In lateral roentgenograms the shadow of the abscess is not well visualized.

The authors report four cases in which the diagnosis rested upon the roentgen signs of a paravertebral abscess. In two these were the earliest signs appearing before visible changes in the bodies of the vertebrae. In the two others the changes in the vertebrae were minimal and not definitely diagnostic.

CHARLES H HEACOCK M D

Pap L *Diseases of the Hip in Adults* (Hüftgelenks erkrankung en bei Erwachsenen) *Ortoskep ts* 930  
xx 297

Because of the peculiar anatomical structure of the hip joint the diagnosis of hip diseases presents many difficulties and in the examination of the hip reliance must be placed almost exclusively on indirect methods. In addition to careful recording of the history inspection palpation and functional tests roentgenography is of great aid. Important conclusions as to the nature of the disease the resistance of the body and the treatment indicated can often be drawn from examination of the blood. However the blood picture shows a decided change only in cases of severe hip joint disease of infectious origin. In such cases the hemogram is of value also in the prognosis. In the presence of the tissue destruction which occurs in inflammatory processes the individual albumin fractions have characteristic displacing effects on the blood picture. These pathological changes in the plasma and serum can be readily determined by the colloidal lability test of Daranyi and the sedimentation reaction of the red blood cells. Especially the latter is a simple and quick clinical method which can be employed by all general practitioners. The blood sedimentation is normal in degenerative processes changes in the hip joint of static origin metabolic disturbances and joint injuries due to trophic disturbances but increased in acute and chronic inflammatory processes of infectious origin. The sedimentation test differentiates tuberculous necrosis from aseptic necrosis

and benign tumors of the hip joint which are visible in the roentgenogram from malignant tumors.

Diseases of the hip joint differ from diseases of other joints because of the peculiar structure and function the special conditions of weight bearing and the very peculiar blood supply of the hip.

The diagnosis of coxitis is not difficult if a thorough examination is made but the determination of the cause of the condition is often more difficult. At the very outset a tuberculous or luetic origin of the disease must be absolutely excluded. In adults infectious coxitis is due most frequently to the gonococcus and the pneumococcus. The course of such hip joint disease varies considerably. As a rule it is very severe. The juvenile type of osteochondritis is a disease of childhood and youth the results of which are encountered in adults. In the pathogenesis of Perthes disease trophic disturbances play an important part. Recently it has been found possible to produce Perthes disease in animals by blocking the blood vessels to the joint with silver powder.

The most common disease of the hip joint is arthritis deformans. One of its causes is constitutional weakness of the joint. The elements forming the joint chiefly the articular cartilage show diminished resistance to continuous insults. Another factor is weakening of the organism due to age. The condition is favored also by local circulatory disturbances excessive demands and increased function. The organism reacts to the primary degeneration of the subchondrium and to the necrosis of the cartilage with increased connective tissue and osteophyte formation. The tendency toward ossification in advanced age often produces bizarre deposits of bone in the hip joint. The mildness of the clinical symptoms as compared with the pronounced changes seen in the roentgenogram and the prolonged maintenance of function are characteristic. Changes in the hip joint are often associated with systemic diseases of the spine. Especially the ankylopoietic spondylitis described by Struempel often becomes localized in the hip. In the presence of symptoms referred to the hip roentgenography must not be neglected as it will often explain a primary tumor or tumor metastases around the joint. In two cases cited by the author roentgenography led to the unusual discovery of deforming osteitis localized exclusively in the hip joint and the pelvic bones.

The treatment of diseases of the hip must be adapted to the requirements of the particular case. The prophylaxis of hip joint diseases requires relief of weight bearing an increase in the muscle power of the lower extremities and restriction of the body weight.

VON LOBMEYER (Z)

Bragard K. A New Sign of Meniscus Injury  
Fundamentals of Examination of the Knee  
Joint (Ein neues Meniscus eichen Grundsetz ches  
zur Untersuchung des Kniegelenks) *Muenchen  
med Wch schr* 1930 1 682

The symptoms of lesions of the meniscus are at times not very characteristic. Even a point of

tenderness to pressure in the middle of the joint fissure on the medial aspect of the extended knee which is often cited as characteristic may not be indicative of meniscal injury. Such a point of tenderness is found also in diseases and injuries of the capsule chronic inflammations of the joint and disturbances in the ligaments due to static changes. Moreover the signs of incarceration which may be caused by a loosened meniscus are not pathognomonic of meniscal luxation as they may be produced also by a fat tag or a cartilaginous joint mouse. In both conditions—the incarceration of fat tags or a cartilaginous joint mouse on the one hand and capsular irritation on the other—an injury of a meniscus can be differentiated with certainty only on the basis of shifting of the meniscus on flexion and rotation of the knee during examination for points of tenderness to pressure.

The author describes the action of the menisci in movement of the joint. As the menisci are fixed only anteriorly and posteriorly they make definite shifts in position with the movements of the normal joint. In extension of the joint for example both are pushed forward and fill out the space between the ends of the bones so completely that the joint line can be palpated only with difficulty. On flexion of about 150 degrees they slip slowly into the posterior part of the joint so that the anterior joint space is opened. When rotation movements are made with the leg flexed their movements are reversed. When the leg is rotated inward with the knee flexed about 90 degrees the lateral meniscus is pushed clear back whereas the medial meniscus is moved forward almost as far as in the extended position of the knee. When the flexed joint is rotated outward the medial meniscus is drawn back and outward and the anterior portion is put under heavy tension and pulled deeply into the joint and the lateral meniscus is moved farther forward than in the extended position of the knee.

It is evident therefore that the menisci are accessible to the palpating finger in two positions of the joint: the medial meniscus which is injured the more frequently in the positions of complete extension and flexion with inward rotation and the lateral meniscus in the positions of complete extension and flexion with outward rotation. When the meniscus is injured it will be tender to pressure in these positions of the joint and when other positions are assumed it slips away from the palpating finger and the tenderness ceases. From the occurrence and subsidence of the tenderness to pressure in these positions a conclusion may be drawn as to whether the sensitive and frequently thickened structure is a meniscus or the capsule. As a rule the longer the point of tenderness takes to disappear on simple flexion of the joint the more severe the injury. In contrast to injury of the menisci affections of the capsule of the joint cause greater tenderness on flexion—the sensitive tissues are then stretched and in addition are pressed upon the hard articular border of the tibia.

ZILMER (Z)

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS ETC

Boon Itr S B A Study of the End Results of  
Synovectomy of the Knee J B & J 15 2  
1930 x 853

The author reports the end results of sixty partial or complete synovectomies performed in forty eight cases of arthritis of the knee. In some instances lat pads and the semilunar cartilages were removed with the synovial membrane. In the cases of infectious arthritis the operation was preceded by the accepted treatment for that condition. After the operation physical therapy was begun as soon as possible. The author draws the following conclusions:

1 In well selected cases of chronic arthritis of the polyarticular type synovectomy results in improvement in about 60 per cent and in well selected cases of chronic arthritis of the monoarticular type it results in improvement in about 75 per cent.

2 In traumatic arthritis synovectomy gives good results in 95 per cent of the cases.

3 Tuberculous arthritis of the knee is not benefited by synovectomy. ELLIOT J. BECKEISEN M.D.

Mellick L S and Pratt T C The Operative  
Treatment of Lesions of the Lower Extremities  
in Diabetes Mellitus J Ch S 18 1930 221 51

This article is based on 281 operations for lesions of the lower extremities in diabetes mellitus which were performed in a period of seven years. The patients remained throughout the treatment under the care of the internist but the entire responsibility for the choice of operative procedure and the decision as to how, when and where amputation should be done rested with the surgeon.

The most important factors indicating the circulatory condition of a foot are pain, the appearance and temperature of the foot and the pulsation of the dorsalis pedis artery.

Pain in the calf or in the sole of the foot suggests failing circulation. Severe pain while the leg is at rest indicates arterial insufficiency with a poor prognosis.

A foot with failing circulation appears dead when it is elevated and becomes dusky or red and shiny when it is dependent.

A foot which is cold at ordinary room temperature has poor circulation. A sharp change in the temperature at some point on the leg means failure of collateral circulation at that point.

Pulsation of the dorsalis pedis artery can be felt in practically all normal feet. When it is absent operative procedures should be undertaken only with great caution.

In conditions due primarily to infection in which the pulse of the artery can be felt and the foot is warm and of good color local operations are usually successful and amputation is unnecessary. When the foot is cold, blanches when it is elevated and flushes when it is dependent local operations are rarely successful and sometimes are dangerous.

In the cases of infection reviewed the organism usually responsible was the staphylococcus albus. The wounds were kept wet constantly with Dakin's solution. In superficial infections ultraviolet light was found of value.

The only form of external heat used to stimulate the circulation in the cases reviewed was the electric pad. Other methods were found dangerous.

Painful feet were often relieved by the following exercises: (1) lying in bed with the feet elevated 60 degrees for two minutes; (2) sitting up with the feet dependent for three minutes; (3) lying down with the electric pad on the feet and legs for five minutes. This cycle was repeated 6 times each period for 3 or 4 periods a day. When walking was resumed it was at first permitted for only half a minute each hour and then gradually increased daily.

Gangrene in a pulseless painful foot is an indication for amputation unless it is confined to the tip of a digit or is superficial. A painful foot which is not relieved by two weeks' hospital treatment should be amputated.

If the arterial pulse is present and the foot is warm, amputation of toes may be done safely for gangrene, osteomyelitis, or recurrent ulcer, or to improve drainage in infection of the ball of the foot.

In the cases of patients under fifty-five years of age, amputation is best done through the lower leg if the skin is warm as far as the ankle, the popliteal artery pulsates, and infection is absent above the ankle.

The Griggs-Stokes amputation requires good pulsation in the popliteal artery, a warm skin of good color to the ankle, absence of signs of infection at least 7 cm. below the tibial spine, absence of all evidence of general septicæmia, and the possibility of using an artificial limb.

Amputation should be done through the thigh when the shortest and surest method is necessary, when the popliteal or femoral artery does not pulsate, when extensive infection is present, and when conditions will prevent the use of an artificial limb.

In cases of severe infection and gangrene of the foot and extensive general sepsis, the guillotine operation must be done and followed after two or three weeks by a secondary plastic amputation if the patient's condition permits. If the fever continues after the guillotine amputation, a search should be made for metastatic infection.

Drainage of the anterior part of the foot is best done on the dorsal aspect, usually by amputation of 1 or 2 toes, but sometimes by amputation of the head of the metatarsal. Attempts to drain in the plantar surface usually fail. A fairly good weight-bearing surface can be obtained after removal of metatarsal heads if the bone is leveled so that the lowest part of the stump is toward the heel.

In major amputations, preparation of the skin lower than 5 cm. below the line of incision is contra-indicated by the danger of stirring up infection. Except in guillotine operations, the use of the tourniquet should be avoided in order to prevent thrombosis.

After operation, special care should be taken to keep the skin of the opposite heel and the back in good condition. Daily irradiation of the back with ultraviolet light is advisable. The stump should be dressed every six to eight days. Sutures should not be removed until after from ten to fourteen days. The patient should be fitted with temporary artificial legs after four or five weeks and encouraged to walk early.

Double amputations may be done and in many cases are requested by the patient because of the comfort and freedom from pain they offer.

In the 281 operations reviewed, the general mortality was 11.6 per cent. In 119 major amputations for conditions due primarily to arterial insufficiency, the mortality was 17.6 per cent, and in 19 amputations done for conditions due primarily to infection, it was 10.5 per cent.

WILLIAM A. CLARK, M.D.

**Rollier A.** Conservative Treatment in Surgical Tuberculosis of the Lower Extremity. *J. Bone & Joint Surg.* 1930, XII, 733.

**Hibbs R. A.** The Treatment of Tuberculosis of the Joints of the Lower Extremities by Operative Fusion. *J. Bone & Joint Surg.* 1930, XII, 740.

**Lo Grasso H.** The Non-Operative Treatment of Tuberculous Joints of the Lower Extremity. *J. Bone & Joint Surg.* 1930, XII, 755.

ROLLIER states that the local destructive lesions caused by so-called surgical tuberculosis are simply manifestations of a general disease and secondary evidence of an infection which exerts a local action only because of a decrease in the general resistance and a disturbance of psychophysical equilibrium. Therefore the treatment should consist of measures to improve the physical condition and the psychic tone or morale and local measures to increase the local defense.

The first essential in the conservative treatment of surgical tuberculosis is exposure of all of the skin to the complete solar spectrum. The skin is an organ which not only possesses functions of protection and secretion, but also is active in the regulation of the circulation and capable of supplying endocrine gland deficiencies. Only general heliotherapy of all of the skin is capable of restoring to this organ its various and extremely important functions in the defense mechanism of the body. Heliotherapy has a restorative influence also on the muscular system and the joints. Its beneficial effect on the blood and the mineral metabolism can be followed by studies of the blood calcium which it increases to normal or above normal. It alters the acid-base equilibrium, alkalinizing and recalcifying areas which have become decalcified by the hyperacidity of the bacillary infection. To be of the utmost value, it must be given according to definite principles of dosage and technique.

Also of importance in the treatment of tuberculosis is the diet. This should consist of cereals, vegetables, and fruits which are rich in vitamins.

The operations which expose the joint to less danger—reduction of the size of the capsule with and without free fascial transplantsations transplantation of the subcapsularis and the muscle plastics of Clairmont and Finsterer—have not met expectations. A greater number of permanent results have been obtained with Kirschner's suspension method and Oudard's elongation of the coracoid process. At least equally effective is the direct method of Perthes which has given ten permanent results and narrowing of the capsule which has given fifty six permanent results. However in the cases treated by narrowing of the capsule there were twenty nine recurrences the majority of which may be attributed to unrecognized associated injuries and therefore are due to the indirect method. Transplantation of bone to the anterior edge of the glenoid cavity gave only two permanent results in the cases reviewed but will probably show considerably better results in future reports. However because of the possibility of necrosis without healing and of infection of the freely transplanted bone impairment of the results is greater than in the direct methods of Perthes and in reduplication of the capsule. According to the cases reviewed the direct reparative methods have a decided advantage over the others.

187 (7)

Freund E. Microscopic Process in the Head of the Femur After Fracture of the Femoral Neck  
(Ueber die mikroskopische Vorgänge am Hufstiftschlüsselbrüche) 187 f path 11 93 cclx 11 326

Freund examined nine fractures of the neck of the femur in old persons which had occurred from three to nine years previously. From a careful study of 203 sections he came to the following conclusions:

Preservation of the vascular connections (round ligament cervical periosteum newly formed strand) is of great importance in the life of the head of the femur. If these connections are entirely interrupted the marrow and spongiosa become necrotic. Erythrocytes from the reticulum of the marrow have initiated decomposition of the dead fatty tissues and have themselves died. The importance of the round ligament is still very much underestimated. While it is true that the marrow tissues and spongiosa may sometimes become necrotic when this ligament alone is preserved in other instances its preservation may entirely prevent necrosis. Later by way of this ligament necrotic tissues are removed and gradually replaced by newly formed marrow and spongiosa to the fracture surfaces with the formation of a nearthrosis. Also when remnants of the periosteum of the femoral neck are preserved and when connecting strands are formed regeneration proceeds from the surfaces of the nearthrosis.

In the broken off head of the femur which has formed a nearthrosis tiny fissures are often found on microscopic examination. Some of these may have occurred before the fracture of the neck (early frac-

tures) and others at the time of that fracture (accessory fractures) but the greater number occurred subsequently (late fractures). The late fractures are recognized from the presence of newly formed bone which has fractured and healed again.

For the nourishment of the cartilage with its sluggish metabolism the joint fluids alone are sufficient. The cartilage seldom becomes necrotic even when there is complete separation of the head of the femur from all of its vascular connections. The healing process after traumatic separation of the joint cartilage and the very varied degenerative and regenerative processes of the joint cartilage in the broken off femoral head do not lead to secondary arthritis deformans. Accordingly the latter condition is of no practical importance among the sequelae of fracture of the neck of the femur.

In cases of fracture of the neck of the femur in which tabes is present all of the signs described by Moritz as characteristic of tabetic arthropathy are found and sometimes are very marked.

JASTRAM (2)

Santos J. A. Chang. In the Head of the Femur After Complete Intracapsular Fracture of the Neck Their Bearing on Non Union and Treatment 187 S 2 193 11 47

The author reports fifteen cases of intracapsular fracture of the neck of the femur. Complete necrosis of the head of the femur occurred in nine and partial necrosis in one. Non union resulted in five. In two cases in which bony union was obtained there was impaction. In one case of non union no treatment was given and in one Whitman extension of the limb was employed. In two cases the hip spica treatment was efficient.

The head of the femur may undergo necrosis after complete intracapsular fracture of the neck of the femur in spite of the presence of the ligamentum teres. Secondary vascularization may or may not occur. In some cases the blood supply may penetrate the spongiosa through the fovea by way of the round ligament or through adhesions along the surface of the eroded neck or articular cartilage. When this occurs considerable parts of the femoral head may be preserved and active bone regeneration may follow. If the necrotic head fails to obtain a secondary blood supply from the ligamentum teres complete destruction and fragmentation of the articular cartilage and bone result. If connective tissue extend from the ligamentum teres into the eroded head there is replacement of cartilage and bone about the fovea with absorption of the deep layer of articular cartilage the process continuing to regeneration.

When bony union occurs in spite of necrosis of the head it is brought about by new bone coming from the distal fragment. When the head of the femur remains alive after the fracture and the fragments are in good position bony union of the fracture will occur in the majority of cases.

There are four main causes of non union (1) displacement of fragments (2) excessive mobility of

fragments (3) necrosis of the head of the femur and (4) necrosis and erosion of the neck fragments

The most important factors in bony union are exact reduction and fixation of fragments. Necrosis of the head is an important cause of non union. When the circulation of the head is completely interrupted and the entire structure dies any callus that is formed for the repair of the fracture must come from the distal fragment. Union between a completely necrotic head and a living distal fragment is more difficult to obtain than union between two living fragments.

If the head remains alive it will undergo the same degree of atrophy from loss of function produced by immobilization and the same degree of restoration with the return of function as the neighboring humerus and distal fragment. In cases of non union and marked functional disability there is a persistent uniform reduction in the density of the head and the bony trabeculae may be entirely lost in relatively large areas. In cases of necrosis of the proximal fragment there is a distinct difference in the density of the shadow cast by the head and the neighboring living bone at the end of the period of immobilization treatment. This difference is visible at the end of six weeks and is usually marked at the end of from two and one half to three months. The head having lost its blood supply has been unable to atrophy and casts a shadow of normal density whereas the neighboring living bone is reduced in density as a result of the atrophy of disuse. Subsequent changes in the

density of both the head and the neighboring bone vary according to whether or not bony union occurs and according to the restoration of function. When there is necrosis of the head and bony union of the fracture occurs the necrotic head casts a heavier shadow than the distal fragment at the end of the period of immobilization. With the resumption of function the tissues of the distal fragment are stimulated to invade the necrotic head with resulting absorption and replacement by new bone. This change is evidenced by an irregular reduction in density which proceeds from the fracture line when the invasion is from the distal fragment and from the fovea when the invasion occurs from the round ligament. Too early weight bearing in cases of necrosis of the head with bony union will cause collapse which is evidenced in the roentgenogram by a depression of the articular surface and irregular dense shadows in the underlying bone due to the compression of the broken down necrotic trabeculae.

When the Whitman method of abduction and internal rotation in a hip spica is employed the cast should be removed after from ten to twelve weeks and a roentgen examination made to ascertain whether the head is dead or alive. If the roentgenogram is not conclusive the roentgen examination should be repeated. If non union results with survival of the head the bone pegging operation of Albee may be employed but if the head is necrosed the Whitman or Brackett reconstruction operations may be indicated.

RUDOLPH S. REICH, M.D.

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Levis D Congenital Arteriovenous Fistulae  
L 93 cc 6 68

It is frequently impossible clinically to differentiate between various vascular lesions. Congenital arteriovenous fistulae may present many of the signs of those of the traumatic type. The congenital fistulae also suggest a close relationship to cirroid aneurisms, rankenangiomas and other types of haemangioma.

Levis reports six cases of congenital arteriovenous aneurism which he has observed recently and gives briefly the histories of twenty four cases which have been recorded in the literature. He discusses the bradycardiac reaction, the cardiac enlargement and the development of the aneurism.

Operative treatment is more difficult in cases of congenital arteriovenous aneurisms than cases of arteriovenous aneurism of the traumatic type because in the former the communications are usually multiple and when the aneurism occurs in the extremity are so situated that they cannot be reached.

Of the twenty seven cases reviewed in which the aneurism occurred in the extremities amputation was performed in thirteen (about 48 per cent). In some cases multiple operations are necessary. Levis believes that the large veins in which the thrill is greatest and the bruit loudest should be attacked first when possible after the artery has been closed temporarily with a rubber covered clamp. Ligation of the arteries in the extremities has been frequently followed by gangrene. In one case mummification of the thumb followed ligation of the brachial artery or the circulatory changes subsequent to it.

The bradycardiac reaction will disappear when a great amount of blood is no longer shunted directly into the veins from the arteries. A heart which has been dilated and decompensated as the result of the disturbance of the vascular mechanism will return to normal when the fistulous communications are closed or removed by amputation. The return to practically normal of a badly damaged heart is illustrated by Israel's case in which an amputation as performed above the aneurismal communication.

Congenital aneurisms do not differ from traumatic aneurisms with regard to the bradycardiac reaction and the cardiac changes. Whether or not these are present depends upon the amount of blood shunted directly from the arteries into the veins.

CARL R. STEIN, M.D.

McPheeters H. O. The Injection Treatment of Varicose Veins. *Am. J. S. S.* 93, 9.

A short history of the injection treatment of varicose veins is given. McPheeters believes that the

majority of cases of varicose veins are due to congenital defects of vein walls. He is of the opinion that an endocrine factor is not to be denied. No proof has been found that infection in the vein wall is a primary cause.

In the treatment of all extensive cases of varicose veins McPheeters uses a 75 per cent solution of invert sugar and a 50 per cent solution of dextrose combined with a 30 per cent solution of sodium chloride. He then employs quinine and urethane for injection of the varices that were missed at the first sitting.

Pregnancy, especially during the first four or five months of the condition is no longer considered a contra-indication to the injection treatment. The cardiovascular case is on the borderline. There is no greater danger of complications in elderly persons than in young persons. Obesity is not a contra-indication but renders the injection much more difficult.

Marked oedema and swelling of the feet may be due to varicose veins, a cardiac renal condition or an old infectious thrombophlebitis. Therefore a correct diagnosis is very important. The diagnosis is aided by the Trendelenburg and Perthe tests. When the Perthe test is positive the injection treatment may be given. Whether the Trendelenburg test shows a definite reverse flow or not. One contra-indication accepted by all physicians is the case in which a definite positive infectious thrombophlebitis has been present at some time in the past, either following confinement or some other cause and has left the deep venous system of the leg severely injured or destroyed. Also in cases of recent thrombophlebitis in the deep system the injection treatment is contra-indicated until time has proved the extent of destruction of the deep circulation and the infectious condition has entirely quieted down.

Various techniques are discussed and McPheeters' method is described in detail with illustrations. As a rule McPheeters prefers to treat all of the lesions at one time. However, when they are very extensive one leg may be treated first and the other leg a few days later. The saphenous vein is not ligated. The most common complication is periphlebitis along the course of the injected vein due to direct injection of the sclerosing fluid outside the vein leakage of the injected fluid through a needle puncture in the wall of the vein or direct passage of the sclerosing fluid through the wall of the vein.

Intalities following vein injections, the causes of recurrence of the varicosities and pathological changes following the injections as shown by biopsy specimens are discussed.

The handling of varicose ulcers is described with emphasis on the use of the rubber syringe. In all

McPheeters cases of ulcer 10 drops of a saturated solution of potassium iodide are given three times a day after meals and Braun seed skin grafts are used

CARL R. STEINKE M.D.

Stern E. L. The Alcohol Injection of Nerve Roots for Thrombo Angilitis Obliterans *Am J Surg* 1930 x 107

Blocking of the nerve roots of the twelfth thoracic and first and second lumbar nerves results in paralysis of most of the vasoconstrictor fibers of the femoral and popliteal arteries. The blocking is accomplished

by injecting into the nerve roots 8 c.c. of 95 per cent alcohol after inducing anesthesia with a 1 or 2 per cent solution of novocain.

Stern reports three cases of thrombo angilitis obliterans in which this procedure was used. In each case there was definite improvement in the circulation evidenced by a rise in the temperature of the extremity. The blocking of the nerves produced no serious paresis or paralysis of the muscles and no sensory disturbances except slight anesthesia of the upper and lateral parts of the thigh.

SAMUEL PERLOW M.D.



# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Breanu Slatina and Albul co The Origin of Postoperative Reactions—Leucocytosis and Azotemia—and the Practical Importance of These Reactions in the Prognosis of Operative Results (Long des é et s post-op a t —leucocytosis fé a tème—et l u pot ce p at que dans le p o t c d s t s oper t es) *P sse d P* 193 xx 1 37

From their studies of postoperative reactions the authors draw the following conclusions

- 1 There is a postoperative leucocytosis
- 2 Postoperative fever due to the disintegration of leucocytes is the result of the reaction of the organism to the operative act
- 3 Postoperative azotemia is the result first of diffusion in the blood of leucocytic ferments and the products of disintegration of the leucocytes of the blood and second of local tissue resorption
- 4 Leucocytosis fever and azotemia are closely related and vary simultaneously
- 5 The variations are directly proportional to the patient's age (a known factor) and his organic resistance (an unknown factor)
- 6 They may be directly proportional also to the duration and severity of the operation
- 7 These postoperative reactions may be of prognostic value with regard to the results of the operation
- 8 In the absence of hepatorenal lesions an intense leucocytosis febrile reaction and azotemia indicate a very favorable prognosis
- 9 A moderate leucocytosis fever and azotemia indicate a favorable prognosis
- 10 A feeble leucocytosis slight fever and no or only slight azotemia indicate a reserved prognosis requiring close postoperative observation
- 11 The absence of leucocytosis or the presence of a definite leucopenia and hypothermia after an operation of long duration with severe trauma indicate a very unfavorable prognosis

PAGE

## ANTISEPTIC SURGERY TREATMENT OF WOUNDS AND INFECTIONS

Albee F H The Bacteriophage in Surgery *I t rat J M d & S t* 93 xl 46

The author discusses the use of bacteriophage in surgery particularly as exemplified by the modern treatment of osteomyelitis popularized by Orr. Instead of frequent interference and dressings the wound is left alone for weeks or even months because allowing the products of the bacteria as well as the granulations to remain undisturbed in contact with the wound is apparently favorable to the

induction of a native bacteriophage. It has been shown that there is a native bacteriophage in wound and that healing is delayed in cases in which this element is lacking and is accelerated by the introduction of the lytic principle. Antiseptics may cause destruction of the bacteriophage.

The most striking characteristic of a wound treated by this method is the appearance of the granulations which are a glistening red and not exuberant or oedematous. When the wound is well packed with vaseline gauze and enclosed in a dressing surrounded by plaster so that uniform pressure is exerted upon it and the surrounding structures the normal appearance of the resulting granulations suggests that normal physiological pressure has been brought about by the dressing. The pus is expressed and the packing extruded from the wound by the pressure of the growing tissues. The point at which this equilibrium is maintained by the dressing is apparently that which is optimal for the healing of tissues. The speed of the epithelialization and the rapid assumption of a normal appearance by the new skin suggest that the healing of all structures is greatly favored by the equalization of the pressure at an optimal level. This principle may explain the unusually satisfactory results obtained when the treatment is applied to varicose ulcers. In the last three years more than 150 cases have been treated by this closed method with excellent results.

JACO M MORA M D

## ANÆSTHESIA

Hendel H Phenomena Accompanying Spinal Anæsthesia (Ueber die Begleiterscheinungen der Lumbalanæsthesie) *A k f k Ch* 193 cl 67

Spinal anæsthesia is now so perfected technically that only the accompanying phenomena which cause distressing but not dangerous still stand in the way of its wider acceptance. While the after complications (headache, local pain in the sacral region, neuralgia in the lower extremities and abductors paralysis) do not present a single homogeneous disease picture and the dyspnoea which is caused by pushing the anæsthesia too far can be avoided the symptoms accompanying the anæsthesia present a definite syndrome: the individual phenomena of which—dizziness, general discomfort, nausea, vomiting, pallor, sweating, spasmodic yawning and in severe cases dulling of consciousness—follow each other in regular order. Up to the present time these phenomena have not been preventable. They appear when the anæsthesia has reached a certain height usually within eight to twelve minutes after the administration of the anæsthetic and just be

fore or immediately after the occurrence of the anæsthesia. In some cases they come on about ten minutes after the subsidence of the excitement attendant upon the beginning of the operation or after completion of the operation. The attack occurs most frequently in the first stage. An attack in the first stage is of shorter duration than attacks in the second and third stages. In the latter stages the attack is likely to begin with pallor and sweating. A number of attacks occur in only one third of the cases.

Nothing definite is known as to the origin of these symptoms. It is improbable that a general toxic effect of the anæsthetic is the cause because in other methods of inducing local anæsthesia considerably larger amounts of anæsthetic are used and because in novocain poisoning tonic spasms are prominent and vomiting is absent. Responsibility of a local toxic action is also improbable because such an action is supposedly the cause of the after effects and could not at the same time produce the accompanying phenomena which appear entirely independently of the later disturbances. Irritation of the meninges may be excluded because as we know from sunstroke this causes severe headache and long continuing after effects whereas the phenomena in question cease with cessation of the anæsthesia.

The fall in the blood pressure which is constant in spinal anæsthesia is in part the consequence of the lowering of tonus in the paralyzed region but is due especially to paralysis of the splanchnicus the roots of which are spread over all of the thoracic segments from the fifth to the twelfth so that the higher the paralysis ascends the more extensive the splanchnic paralysis that follows. However sinking of the blood pressure and the phenomena accompanying the anæsthesia should not be confused as the latter do not make up the phenomena of collapse.

Seasickness presents great similarity to the syndrome accompanying spinal anæsthesia. Both conditions are accompanied by a lowering of the blood pressure disturbances of equilibrium and sensitivity to psychic impressions (recurrence caused by impressions arousing nausea). Seasickness begins with movements of swallowing and ends when these movements cease. The cause of seasickness is a disturbance in the organs of equilibrium (semicircular canals and otoliths) which leads to excitation of the vagus nucleus and thereby brings about a disturbance of equilibrium in the vegetative system—pre dominance of the cranio autonomic over the sympathetic.

The author is inclined to assume that the disturbance of equilibrium responsible for seasickness is concerned in the origin of the phenomena occurring in spinal anæsthesia except that in the latter the shifting in the equilibrium is caused by diminution in the activity of the sympathetic. This theory would explain why the phenomena in question occur with special frequency and force above the level of the umbilicus in spite of the fact that a large part

of the splanchnicus affected by the anæsthetic is below this level. Below the umbilicus the parasympathetic being paralyzed with the sympathetic there is no shift in equilibrium whereas above it the vagus is not affected its excitation remains the same and the activity of the splanchnicus is diminished.

The author found his assumption confirmed by the fact that novocain infiltration of the vagi compensated the lowering effect of the spinal anæsthesia on blood pressure.

The most certain remedy for the phenomena accompanying spinal anæsthesia which is yet known is Bier's hyperæmia at the neck. In spinal anæsthesia the splanchnicus is acted upon unavoidably. Therefore the syndrome can be attacked only through the antagonist the vagus. The author has recently undertaken experiments with vasana the well known remedy for seasickness. **STEVENS (Z)**

**Kleine H O** The Origin of Neurotrophic Ulcers After Sacral Injections. Observations on the Theory of Trophic Nerves (Die Entstehung neurotrophischer Ulcers nach Sakralinjectionen. Bemerkungen zur Theorie der trophischen Nerven). *Arch f Gyna k* 1930 cxi 554.

The author reports two cases in which the induction of sacral anæsthesia failed and operation performed under ether narcosis was followed by the appearance of changes in the skin of both feet. In the first case symmetrical ulcers appeared and in the second ulcer formation on one side and œdema on the other. Kleine believes that in seeking the cause of such sequelæ it is necessary to consider traumatic lesions of the posterior roots at the site of the injection chemical irritation (novocain utocain especially when supplemented by the action of adrenalin) and vulnerability of the peroneal nerve (skin over the dorsum of the foot). **A FRIEDMANN (G)**

## SURGICAL INSTRUMENTS AND APPARATUS

**Kirschner M** Changes in the Asepsis of Paraphernalia for Operation (Wandlungen in der Asepsis des Operatio sappa ates). *Chir rg* 1930 ii 337.

Bacteriologists have become more and more emphatic in calling the surgeon's attention to the fact that the security of measures employed today to obtain asepsis is doubtful. Knorr (Munich) has found that catgut prepared for operation often contains bacteria also that silk and thread which has been subjected to boiling for a considerable length of time at 100 degrees C is not completely free from bacteria. Konrich (Berlin) has shown by his investigations that the usual methods of sterilizing swabs compresses and linens in a stream of steam at 110 degrees C and one half atmospheric pressure is not sufficient to destroy all bacteria. Even metal instruments are not completely sterilized by boiling in water. However the bacteria or spores which have resisted the ordinary methods of sterilization are

usually quite harmless. They are mostly the spores of anaerobic hay bacilli and soil bacteria which according to general knowledge do not cause any particular injury in wounds.

These observations raise the question as to whether we should still continue to strive for the old ideal of complete sterility when this goal is as yet unattainable in certain respects (the hands of the operator and the skin of the patient) or should give up this goal because up to the present time it has not been attainable in all respects and the bacteria remaining after sterilization procedures now in use apparently do not have a marked pathogenic power. The author believes we should continue to destroy the bacteria as much as is possible and combat all recognized sources of contamination with all available weapons.

As the first practical result of the investigations cited the manufacturers of catgut have been aroused and every effort is being made to render catgut completely sterile without reducing its tensile strength. In aseptic operations the author uses only boilable ligatures preferably thread. Although boiling does not insure complete sterility there is a tremendous difference between the bacterial content of catgut

and that of silk or thread which has been boiled for ten minutes. The author has experimented also with aluminum bronze wire (0.15 mm) which may be boiled for hours or heated red hot.

The procedures used for the sterilization of bandages and operation linen must be radically changed. As Konrich has shown that sterility is insured only by exposure to steam at 120 degrees C and under one atmospheric pressure for fifteen minutes the development of new sterilization apparatus to meet these conditions is necessary. Moreover metal instruments must be sterilized by boiling at 120 degrees F.

Of particular importance is the separation of instruments and gloves used for septic and aseptic operations. Since we now know that our sterilizing methods are imperfect the separation of septic and aseptic instruments is essential. The author points out also that the same side of the glove should always be used. One side of the glove should always be toward the skin and the other side always toward the outside. The glove should be so labelled.

Kirschner concludes his report with these words: Better too much effort than defective asepsis.

ZILLME (Z)

## MISCELLANEOUS

### CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Valentin B. *Clinical Contributions on the Nature of Malformations* (Klinische Beiträge zum Wesen der Missbildungen) *Arch f orthop Chr* 1930 XVIII 385

Valentin limits himself to answering the question: Is it possible to increase our knowledge of the nature of malformations from purely clinical data? The clinician sees the complete fully developed malformation and can draw conclusions regarding its genesis only with great caution. For example spina bifida may be regarded as a reaction of the germinal cells or a reaction of the developing organism to injuries of various types. In the completed malformation the mode of origin can no longer be recognized. Another example is syndactyly. This may have an endogenous origin in which case it presents a definite clinical picture or it may originate in later embryonic life perhaps through adhesion of the fetus to the amnion. In some instances therefore it is possible to conclude from clinical examination not only the approximate time of the origin of a malformation but even to determine whether the condition is a primary or secondary malformation. The author cites a case in which examination of the placenta enabled the pathologist to establish the presence of amniotic malformation although he had no knowledge concerning the child.

The relationship of abnormal pigmentation to malformations of various types is discussed and demonstrated by illustrative cases such as cases of neurofibromatosis with osteitis fibrosa osteomalacia and scoliosis.

Valentin concludes that formally and causally malformations may arise in various ways and cites proofs of the correctness of this theory. He warns against the error of accepting the exogenous theory, i.e. origin through pressure of the amnion for all malformations that we do not recognize as hereditary.

VALENTIN (Z)

Baumgartner E. A. and Jewett C. H. *Tropical Sprue: Experience with Thirty Six Cases* *A Ch Int Med* 1930 XLVI 597

The thirty six patients whose cases are reviewed had lived in the Orient or tropical countries for from one to thirty nine years. Their ages ranged from thirty two to seventy one years. Twenty four were women. The cause of the condition is unknown.

In twenty five cases the earliest symptom was diarrhoea. At some time all of the patients had had trouble with the mouth. In most cases the mouth condition consisted in the appearance of small ulcers. All of the patients complained of marked abdominal

distention due to gas and gave a history of weakness and loss of weight during the acute stage of the condition. In nearly every case the stools were characteristically of sprue in the acute stage being grayish large and frothy.

In sixteen cases the blood picture was similar to that of pernicious anaemia. In all but four pernicious anaemia was definitely ruled out by the presence of free hydrochloric acid in the stomach, a low blood calcium with or without tetanic reactions or definite dilatation of the colon. Several of the patients showed a severe secondary anaemia.

Improvement in the general condition and return of the appetite almost always follow restriction of carbohydrates and fats in the diet. In cases with severe anaemia liver is of value in the treatment.

CARL R. STEINKE M.D.

Leriche R. and Fontaine R. *An Experimental Study of the Effect of Section of the Spinal Cord on Arterial Pressure. Its Application to Surgical Shock and Traumatic Shock* (Étude expérimentale de l'influence de la section de la moelle sur la pression artérielle. Applications à l'étude du choc chirurgical et du choc traumatique) *Pr se med* Par 1930 X XVIII 1233

The most recent textbooks of physiology teach that resection of the spinal cord at the level of the seventh dorsal segment provokes vasodilatation of the lower limbs. Resection above the third dorsal segment causes a vasodilatation of the four limbs. Resection above the seventh cervical segment causes generalized vasodilatation and loss of vascular tone in the paralyzed territories. Determination of a marked fall in the arterial pressure which after high resection of the cord goes from 12 to 2 cm Hg. The initial hypotension is fleeting and ceases spontaneously after a time because of the entrance of the medullary vasomotor centers into function.

The authors undertook to repeat the old experiments of Ludwig and to study the effect of medullary resections on arterial tension. Ten dogs were used. In eight of the animals the pressure did not vary during the resection nor up to four hours after the operation. Sometimes especially in cases in which the anesthesia was not deep enough resection provoked of itself a slight hypertension with great oscillations. As a rule however the tension did not vary. Hypotension occurred in only two instances.

After resection of the cord between the second and third dorsal segments no vasomotor paralysis of the limbs and not even a fall in arterial tension was noted. In the two animals in which the blood pressure fell after medullary resection injury of the spinal veins with considerable loss of blood had occurred in the course of the operation. In the

eight other animals there had been no loss of blood. Hypotension following resection of the cord is due not to a paralytic vasodilatation consecutive to the separation of the cord and the superior intrabulbar vasomotor center but to an operative hemorrhagic shock which can be avoided by the use of a better technique.

It is generally believed that vasomotor tone is reestablished after several hours or weeks. In two of the dogs the authors measured the blood pressure twenty-two and eighteen days after the operation. In the first they found a difference of 15 cm Hg and in the second a difference of 4 cm Hg. This late hypotension may be explained by the poor physiological condition of the animals twenty days after a high medullary resection. They had trophic disturbances with often considerable edema and eschars.

Loss of blood rapidly unbalances the vasomotor regulation and this produces a more considerable fall in pressure than that resulting from anemia itself. As soon as there is a fall of pressure of hemorrhagic origin the least nervous excitation is expressed by increasing depressive actions and the traumatic factor is added to the hemorrhagic factor. The first element in the prevention of operative shock is careful hemostasis throughout the operation. PAGE

## GENERAL BACTERIAL PROTOZOAN AND PARASITIC INFECTIONS

Ioynton F J and Moncreiff A. Infective Granulomata and Streptococcal Infection. *Lancet* 1930 c 8

A girl aged thirteen months was admitted to the hospital with swollen glands of the neck which followed a bad cold seven weeks previously. Before the development of this condition she had been healthy.

The temperature was 100 degrees F and the pulse 136. The cervical glands on the right side of the neck were enlarged and firm and seemed to adhere together. Glandular enlargement was found also in the right axilla and both groins. The chest and abdomen were normal.

At the end of a week all of the glands had increased in size and incision of the right cervical nodes revealed a thin purulent fluid which on culture yielded streptococci. The blood picture was as follows: red blood cells 4,000,000; white blood cells 2,000; haemoglobin 5 per cent; polymorphonuclear neutrophils 76 per cent; small lymphocytes 6 per cent; large lymphocytes 9 per cent; mononuclears and eosinophiles absent. This picture did not change greatly during the course of the illness. The Wassermann and Kahn reactions were negative. The child died ten weeks after admission to the hospital.

The autopsy findings were without interest except for a mass of adherent glands on either side of the neck which contained thin blood-tinged pus. The mass on the right side pressed upon the pharynx

and there was oedema of the glottis. The mediastinal glands were greatly enlarged. The liver was enlarged and contained two small white deposits suggestive of lymphadenomatous material. The mesenteric glands were normal. The right iliac and inguinal glands were enlarged and beginning to break down. Cultures of the heart blood showed hemolytic streptococci. Histological examination of the lymphatic glands disclosed a definitely thickened capsule and areas of engorgement with red blood cells and polymorphonuclear leucocytes. There were areas of excess eosinophiles and endothelial cells and many large multinuclear endothelial cells thickly centrally placed overlapping nuclei of the type associated with Hodgkin's disease. The center of many of the lymphoid follicles was invaded by endothelial cells. The areas in the liver also showed endothelial cells.

The clinical appearance of the glandular enlargement suggested Hodgkin's disease and the histological examination confirmed this impression. On the other hand there was direct evidence of a streptococcal infection. In discussing the nature of this infection the author points out that the case must be considered as well as the nature of the disease. He states that if in the case reported the streptococcal infection had been more virulent at the onset septicaemia would have resulted whereas if the resistance had been greater the acute feature would not have been present and death would have occurred from cachexia and cardiac failure as in the typical case of lymphadenoma. Under the circumstances the tissues put up a borderline response to the streptococcal invasion which closely resembled Hodgkin's disease.

Ruling out the possibility that this was a case of lymphadenoma with a terminal streptococcus infection are the age of the child, the lack of change in the blood picture which would indicate leukaemia and the improvement in one group of glands with enlargement in another group in the absence of an obvious source of infection.

In conclusion the author advises against too rigid classification of disorders of the blood lymphoid elements and reticulo-endothelial system occurring in childhood. WILLIAM J. PICKETT M.D.

## D V II. Some Complications of Hydatid Disease

*British Medical Journal* 1931 275

The common site for the lodgment of the embryonic hydatid is the liver. A hydatid follicle forms which becomes vesicular in two or three weeks. As fluid collects within the cyst an adventitious capsule is formed about the inner laminated layer. The laminated layer is elaborated by the parasite and the adventitious capsule by the tissue reaction of the host. With the formation of these coverings all leakage from the cyst stops. The laminations are laid down from within outward and show a tendency to form fissures. The outer layer has a more tension than the inner layers; there is a tendency of the cyst to turn inside out in case of rupture. Within

the laminated layer there is a nucleated germinal layer which elaborates the laminated membrane the specific fluid and the solices

Simple cysts are found typically in children and young adults. Hence the majority of cysts discovered are nearly as old as their hosts. Though small cysts may cause early symptoms when they occur in certain situations such as the orbit or cranial cavity large cysts characteristically remain latent in many organs even producing deformity before they are detected. Attention is usually first attracted to them by the complications resulting from escape of the cystic fluid.

General effects of the rupture of a cyst are first anaphylaxis and later secondary echinococcosis. Special sequelae of rupture of a cyst into one of the natural channels are first mechanical effects and later suppuration in the cyst. The most common symptoms are anaphylactic—a rash, dyspnea, cyanosis, abdominal pain, nausea, delirium and perhaps profound cardiovascular shock leading to a fatal termination. Dew has divided his cases into three types according to the clinical manifestations: the common, benign, the severe and the grave.

Following the rupture or puncture of hydatid cysts secondary echinococcosis may take place. The parasitic elements are so persistent that they are able to survive and ultimately develop often at a distance from the original cyst. Any of them can grow if implanted into the tissues under aseptic conditions. The cysts are always of slow growth, taking from five to twelve years to develop. When rupture of a cyst takes place into the heart or venous system metastatic secondary cysts occur with consequent dissemination into the lungs or cerebrum.

The chief mechanical effects of rupture are clogging of channels into which the rupture occurs with consequent signs of irritation of the part affected. A bronchobiliary fistula may form causing the appearance of bile in the sputum and leading eventually to suppuration of the cyst. When a subpleural cyst involves a patent bronchus hydatid pneumothorax may result. In the majority of these cases pyo-pneumothorax develops and may be confused with tuberculous pneumothorax. The right side is involved more frequently than the left. There is rarely any positive previous history.

CLARENCE V. BATEMAN, M.D.

### DUCTLESS GLANDS

Coffey, W. B. and Humber, J. D. Extract of Adrenal Cortex Substance. *Californ. & West. Med.* 1930 xxxi: 640.

The authors restate the following premises of a previous communication:

1. Among the control or governors in our physiological make up there is a control or stabilizer of tissue growth.

2. This control or stabilizer of the development and multiplication of tissue cell is of the nature of an active principle or hormone.

3. This hormone is produced by certain cellular elements of the body which are found in considerable amounts in the cortex of the suprarenal glands.

4. This hormone or active principle may be produced also in other parts of the body yet to be determined. Extracts made from other tissues have been found to exert what is probably an inhibitory effect on cellular growth when normal cellular growth has been disturbed.

5. This hormone or active principle is found in a highly potent form with an unmistakable effect upon malignant cellular growth in extracts made from a portion of the cortex of the suprarenal glands.

6. The extract containing the active principle has a destructive effect upon malignant tissues causing its necrosis and death without destroying normal tissues.

In clinical cases of malignant new growths the authors found that when extract of the suprarenal cortex was injected subcutaneously in graduated doses at definite intervals it caused marked necrosis in the areas of malignancy followed in a short period of time by sloughing when such a process was anatomically possible. In cases in which the process was anatomically observable it was found that the tumor mass usually became necrotic and liquefied. Soon after the first injection the pain was often alleviated or ceased entirely.

At autopsy it was noted that metastatic areas of involvement showed evidences of necrosis although in some instances the areas were very small. Microscopic examination of such presumably necrotic tissues showed that the malignant tissue had broken down and degenerated and had become necrotic.

Injections were made when possible twice a week but in some cases only weekly injections were given. The dose was increased from 1 minim to a maximum in the average case of 12 minims.

The authors believe that previous X-ray and radium therapy delay the beneficial effects of the suprarenal extract. They conclude that the extract has a vasodilator action influencing the sympathetic system. They describe the method of preparing the suprarenal extract and cite numerous cases in which improvement followed its use.

JOHN H. GARLOCK, M.D.

Eldelsberg, J. Endocrinopathies. The Thyroidal Syndromes. Diagnosis and Treatment. *Med. Clin. North Am.* 1930 xi: 425.

The author reports three cases illustrating thyroidal syndromes.

Deficiency of the pituitary gland may be limited to either the anterior or the posterior lobe but is usually due to both. Anterior lobe deficiency is indicated by arrest of growth, small extremities and small tapering fingers and by sex characteristics such as small genitalia, small breasts, absence of hair and amenorrhea. Posterior lobe deficiency is manifested by obesity of the lower part of the

abdomen increased sugar tolerance a low blood pressure a reduced basal metabolic rate and occasionally the syndrome of diabetes insipidus

The diagnosis is aided by X ray examination of the skull. When the sella turcica is distinctly small i.e. when its diameter is less than one fifteenth of the skull diameter or when it is enclosed by bridging of the clinoid processes the assumption of a decrease in the size and function of the pituitary gland is justified. In tumor cases a decrease in the field of vision for color revealed by the perimeter is a helpful early finding. Certain measurements are of value. Normally the distance between the symphysis and the top of the head is equal to the distance between the symphysis and the soles of the feet. In pituitary disturbances the former measurement is usually greater than the latter. Lack of hormone from the anterior lobe arrests the growth of the long bones.

In the treatment of hypopituitary deficiency sufficient thyroid is given to bring the pulse to 96 in

the cases of adults and the rectal temperature to 99.6 degrees F in the cases of younger patients. Pituitary gland substance is administered by mouth and by subcutaneous injection. The anterior lobe substance is given in doses varying from 15 to 45 gr daily. The whole gland substance is administered in doses varying from 12 to 40 gr daily. An extract of the anterior lobe substance is given by injection 1 c cm being given daily in extreme cases and two or three times a week in milder cases. In case of posterior lobe deficiency extract of the posterior lobe is given by injecting 2 c cm or more daily in severe cases and two or three times a week in milder cases. The most satisfactory results are obtained by the combined methods of treatment. Patients have frequently been taught to give themselves the injections.

The prognosis is best when sufficient therapy is instituted early in life.

MARCEL F. LICHTENSTEIN, M.D.

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NOTE—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

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## SURGERY OF THE BONES JOINTS MUSCLES TENDONS

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## SURGICAL TECHNIQUE

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# International Abstract of Surgery

*Supplementary to*  
**Surgery, Gynecology and Obstetrics**

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ORDACH I Bl d N ppl  
MILTZ W A W J stf l Ad st Amputa  
tu n C f f l ed Breast  
CHITTE SKI The Ir ry Tum n B a t  
Ca ci n

## Trachea Lungs and Pleura

BRUNN H a d BRILL S Obse at s n l o t  
peratu Pulmon y Atelectas s  
AMBERSO J B JR The I d e a t i o n s f o a d the  
Result of A t f a l f n e u m t h r a T e a t m n t  
in Pulm ary Tub c los  
ALE A DER J I h n t o m y d i t s t a l  
Ne rect myfor Pulm ary l b cul  
FRO N I K Thorac pl sty l u T e t m e n t o f  
Pulm nary T b e cul o s  
WEBB G R Gener l C n s i r a t o s i t h I d e o f  
S g e r y i n Pulm nary T b e cul s  
BRATF L and MULLARD H Th D u Dis  
t r b a s i s o c t e d w t h l n u m t h o r a x  
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t u n  
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P t  
OLRHOLT K H l o s t p t P l m o r y H y p o  
e n t u l a t i o n

## Esophagus and Mediastinum

D LBOY S W H y p p l a t f t h e T h y m u s

## Mesothoracic

COON I P A t h o m y c s o f t h e T l r a  
HARNOT S W I n t h a c n w C o w t h  
Th A c t i f s l T r a t m n t i n T w t y  
l o C a c s

## SURGERY OF THE ABDOMEN

## Abdominal Wall and Peritoneum

GIB C I I F E L I E R P K l d R l t l  
Ingu l H Operat s o n  
JURK L T r s e l s o n i t l A b l m n l  
W f t l S p g i l a n f r O p r i t o n a l e  
H y p o c h d m  
A A W C M e t e L y m p h a d t i n  
A d u l t i f i e d o t p p e d e t I d g s  
t D l a d e a t h r i t s

## Gastro Intestinal Tract

SEMB C A t l r P e f o a t o o f G a s t e a n d  
D d l U l c r  
MILLER T G I L A S O N I I d W R I G H T A W  
M C r i m m o s D g n t f a P o l y p  
f t h S t m b A R p t t o f l h t I r s o l  
C a w i t h R e c w f T w n t l r R e c o r d e d  
b y O t h

BOIS I The D i t e t i c T e a t m t f P t u n i s w i t h  
I n o p e a b l e C a c e f t h S t m a c h

KAUFMAN R A c u t e I n t e s t i n a l O c l u s i n t h e  
C u r s f S l p g i t s

BURGET G I M A R T I Z L O F K S I C A W G d  
T H R N T O C B T h C l o s e d I n t e t l L o o p

I T h K e l a n f I n t r a l o o p ( J s m l P e s s u  
t t h e C l e c l c d t n f i h e A m a l

SCHITZLER H T h C l i n i c a l P e c t u r a d P a t h o g e  
e s o f I n t e s t i T u b e c u l s a d I t s C m  
f i c a t i o s

GARIN J D H y p e r p l a s t i c T b e r c u l s i s f t h  
D o d u m a d T e r m a l I l e u m l p o r t o f  
C a

WAT R C A T l F o e t g l c a l D i a g n o s o f  
P p l m i x o f t h D u o d n m

MERARD J I n t r a p e r t o a d C l a s e o f t h A r t h  
c i a l A n u s n t h L a r r e l i t n

RATCLIFF I A S b m u o L p o m a f t h C l o  
S i r o s k l T d n c a l D t a l s O p r a t n s f  
A o c t a l F u l t u r

DAN HEISSER F R a d c a l O p e r a t i n l C n r f  
t h e k e t m

FINY I H T o S t g A b d o m p e f R  
m o l f C a c e r f t h R e t m

Liver Gall Bladder Pancreas and Spleen

I I D E V A L D J a d M o r i s o T H A C h o i c a l  
S t d y f G i m m a o f t h L e

ILL A C D R A Y L E R C F a l O d o r B H  
T h e I f f e c t o f C h l c y s t l i n n t h H m a  
G l l B l a d d

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P e c a s

FOORD A G a d B O E N B D A c u t I t e r s t a l  
P a n c r e a t i t i n T o C a s e f D b t e C m a

BROCK P d M I G N I A C G C h r o c P a c r e t t s  
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i l l y n l C h l d h o d

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A n m

BOYTA M B S p l e t m y n G u c h s D e a

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BAILL H P u r p r A s A n A c u t A b d m i n a l  
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OGILVIE W H A b d o m i n l O t h p d e s

KNOPFAC J G I n t a A b d m l T r s o o f t h e  
O m e n t u m a d A p p n d c e E p p l e c

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# INTERNATIONAL ABSTRACT OF SURGERY

MARCH 1931

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Dufourmental L. Temporomaxillary Ankyloses of Obstetrical Origin (*Le ankyloses temporo maxillaires d'origine obstetricale*) *Bull et mem Soc d ch rurgiens de Par* 1930 *xxv* 502

Since Massart's study of obstetrical injuries as a cause of ankylosis of the jaw the author has re studied his own cases with regard to the responsibility of obstetrical injuries for the development of the condition

Of sixty five cases a definite cause of another nature could be discovered in forty eight In seven teen cases the cause was obscure but in eight of the seventeen the patient's mother gave a history of difficult labor terminated by force In two cases Moinceau's maneuver had been used

A peculiarity of the ankylosis due to obstetrical injuries is the constant hypertrophy of the bone This is a general characteristic of ankyloses developing during early infancy At the site of the joint there is an enormous block of bone The former joint line is represented merely by a groove

In ankyloses due to other causes atrophy of the component parts of the joint is the rule

The author disapproves of the usual treatment of temporomaxillary ankylosis—sectioning of the mandible through the ascending ramus While the operative difficulties are fewer the functional results are less favorable than when the jaw is mobilized by cutting directly through the block of bone forming the ankylosis

In the discussion of this report MASSART pointed out that the obstetrical injuries resulting in temporomaxillary ankylosis occur in cases of difficult labor in which survival of the infant and mother constitute an excellent result even though a fracture dislocation or ankylosis is produced Moreover he believes that the cartilages of the infant have been rendered abnormally fragile by syphilis or some other constitutional disease

ALBERT F. DE GROOT, M.D.

Benedict E. B. and Meigs J. V. Tumors of the Parotid Gland A Study of 225 Cases with Complete End Results in 80 Cases *Surg Gyn & Obst* 1930 *li* 626

The authors define mixed tumors of the parotid gland as benign growths of varying histological structure Ewing states that an endothelial origin of these neoplasms has been disproved and that no single source will explain all of them He believes that the derivation of mucous tissue and cartilage from gland epithelium has been satisfactorily proved

Fry concludes that the so called mixed tumors of the salivary glands are not mixed tumors but entirely of epithelial origin and that the mucinous material which is present in most of these neoplasms is a true secretion of mucin from the tumor cells He states that the tumors do not contain cartilage that the substance described as cartilage is formed by the change in the mucin of the tumor and that the cells are epithelial cells Some of the tumors show varying degrees of malignancy and there is no dividing line between those that are benign and those that are malignant

Ewing classifies tumors of the parotid gland into (1) benign adenomata (2) malignant adenocarcinomata or carcinosarcomata and (3) autochthonous mixed tumors He classifies mixed tumors as (1) myxochondrocarcinomata (2) basal celled carcinomata with a hyaline stroma and (3) adenoid cystic epitheliomata

Parotid tumors may occur at any age Benign tumors are more apt to occur before the age of forty years whereas malignant tumors usually begin after the age of forty years Tumors of the parotid occur with equal frequency in males and females and on the right and left sides Persons with malignant tumors usually seek medical advice much sooner than those with benign tumors In the majority of cases of mixed tumor there is no pain whereas in cases of malignant tumor pain is fairly common The pain is described as cramp like very severe or neuralgic It is probably due to pressure on the fifth nerve The

tumors vary greatly in size. McFarlan reported a neoplasm of the parotid which weighed 26 lb. Nearly all parotid tumors are hard.

In practically every case the treatment should be surgical. Radium and X-ray irradiation are only palliative and never curative. At the time of operation a frozen section should be examined by a pathologist. If malignancy is found removal of the entire parotid gland with complete dissection of the neck should be done at once. Herein if the tumor is found to be benign sacrifice of the facial nerve will be unnecessary. The authors believe that the high incidence of recurrence is due partly to incomplete operations.

Encapsulation suggests that the tumor is benign but in every case care should be taken in removing the tumor to avoid rupturing the capsule and disseminating the cells.

Ligation of the external carotid artery lessens the hemorrhage during the operation but under no circumstances is ligation of the common carotid justified. When the surgeon must choose between an operation which will result in facial paralysis and a procedure which will remove the growth completely he frequently chooses the latter but when the tumor returns paralysis often follows from pressure on the nerve. In a case cited by the authors the facial nerve was purposely cut to facilitate removal of the tumor and was then sutured together. Only very slight paralysis resulted. In several cases in which the facial nerve was cut or severely traumatized there was complete facial paralysis for several months which later cleared up entirely.

Mixed tumors frequently recur but the recurrence is almost always benign and metastases are never formed. In carcinoma the prognosis is poor very few cures having been obtained. Local recurrence after removal is often very prompt occurring after a period of months rather than years. Metastases from carcinoma may be formed in the lungs or the bones. The length of life after operation is almost invariably short. In sarcoma the prognosis is poor but apparently not so poor as in carcinoma there is no record of distant metastases from sarcoma of the parotid but sarcomata rapidly infiltrate neighboring structures lymph sarcomata metastasizing by lymphatics and fibrosarcomata probably by the blood stream. I. A. B. Smith, M.D.

#### EYE

Perotti D. Roentgenability of the eyeball and the possibility of Trauma to the Pneumotonometer. (Slight to dull bluish discoloration of the sclera, pupil, iris, and cornea).  
t m t j R g t d l t p  
93 63

The author reports two cases of trauma of the face in which the eyeball surrounded by a transparent ring was visible in the roentgen picture. He thinks this finding was due to emphysema of the fatty tissue of the orbit and was an indirect sign of

fracture of the lamina papyracea of the ethmoid through which air entered the orbit from the ethmoidal sinus.

At first the picture looked like that of pneumotonometer the presence of air in Tenon's space which is useful for diagnostic purposes but Tenon's capsule is separated from the lamina papyracea of the ethmoid by the fatty tissue of the orbit and air coming from the ethmoid sinus would strike the fatty tissue of the orbit first. Tenon's capsule is made up of two folds connected by numerous septa and with a space between them. If the picture had been that of pneumotonometer it would have meant that a small fragment of the lamina papyracea had traversed the fatty tissue and lacerated the external fold of the capsule.

Moreover in pneumotonometer the transparent ring around the eyeball does not reach the base of the orbit as it did in the cases reported and it surrounds the whole circumference of the eyeball whereas in the author's cases it was interrupted by opaque zones at the upper angles of the orbit. The superior external opacity in one of the author's cases was probably due to the shadow of the lacrimal gland and the superior internal opacity in the other to the shadow of the superior oblique both of them structures outside of Tenon's capsule.

Another finding indicating that the air infiltrated the fatty tissue rather than Tenon's capsule was that it had entered the lateral recess of the frontal sinus through a fracture of the floor of the sinus which is in immediate contact with the fatty tissue of the orbit and not with Tenon's capsule.

In the first case the infiltration of air lasted for about forty-eight hours and in the second for about twenty-four hours. It did not cause any troublesome symptoms. At R. A. G. Morgan, M.D.

Clark G. P. Fye. Clinical Observations in Patients After Treatment with Malaria. (J. Opt.) 930 1946

The author believes that the improvement in paresis after malarial fever therapy is to be attributed to stimulation of the defense reaction of the reticulo-endothelial system, the increased temperature and the hyperemia. In the series of fifty cases

which he reviews the mental condition precluded the possibility of certain subjective examinations. During the course of the treatment ocular hemorrhages occurred in two cases and bilateral near retinitis developed in one case. In the author's opinion these were probably due to the quinine. There was no marked change in central acuity. In only one case was there an extraocular palsy. This did not improve. The pupils of six patients were not improved by the malarial treatment. Twenty patients had a definite pathological lesion in some portion of the fundus. In eighteen there were changes in the nerve head. Twelve showed decided improvement after subsidence of the malaria. Four of twenty whose mental condition permitted a perimetric examination showed improvement. A. R. C. Wescott, M.D.

Johns J P The Influence of Pregnancy on the Visual Field *Am J Ophth* 930 vin 936

The findings of a study of the visual fields during pregnancy in twenty nine young women are summarized as follows

1 Definite concentric contraction of the form and color fields occurred in the majority of the cases reviewed

2 The blind spot was enlarged in the majority of the cases

3 The general reduction of retinal vitality as shown in the field changes paralleled the decrease in vitality through the pregnant state which was noted in endocrine studies

4 The field studies did not show the characteristics of a pathological condition of the pituitary gland

The author concludes that the field changes in pregnancy probably depend upon a functional modification rather than enlargement or vascular changes in the pituitary gland

VIRGIL WESCOTT M D

Gonin J The Treatment of Detached Retina by Searing the Retinal Tears *Arch Ophth* 1930 iv 621

Finlay C E A Modification of Gonin's Surgical Method of Treatment of Detachment of the Retina *Arch Ophth* 930 i 662

GONIN reviews 300 operations performed on 50 patients in which detachment of the retina was treated by searing the retinal tears

He states that in more than 95 per cent of the cases in which ophthalmoscopic examination is possible 1 or several holes may be detected in the retina if a careful search is made In about 10 per cent of these cases the lesion is not a hole in the retinal tissue but a rupture or tearing away of the insertion of the retina at the ora serrata In all recent cases in which the hole or tear is closed an immediate complete and permanent cure is obtained In older cases closure of the tear stops the detachment and may cause more or less complete replacement of the retina but restoration of vision generally remains incomplete

If the detachment recurs it will be found that the tear was not completely closed or that another tear was overlooked Recurrence of detachment in a different region of the eye is due to the formation of a new hole in the retina

FINLAY reports a modification of Gonin's technique which is intended to prevent the formation of a fistulous opening from necrosis of the wound margin

In this procedure he incises the conjunctiva and Tenon's capsule down to the sclera and makes a series of longitudinal cuts in the sclera with a Graefe knife until retinal fluid is exuded He then cauterizes the scleral surface superficially about 0.5 mm from the edges of the wound sutures the conjunctiva and applies a pressure bandage

VIRGIL WESCOTT M D

## EAR

Leroux Robert The Congestive Element in Deafness Treatment with the High Frequency Current (L'element congestif dans la surdit   son traitement par la haute tension) *Presse med* Par 930 xxxviii 1377

The treatment of deafness is very complex The physiology of hearing is still in a process of evolution and there is much that is still unknown regarding it Except in the rare cases of permanent deafness due to an incurable lesion such as occurs in certain infections complicated by acute labyrinthitis (mumps fever) hemorrhagic labyrinthitis (arteriosclerosis) or intracranial lesions (thrombosis embolism meningoneuritis) chronic types of deafness are progressive and present a lesion in the process of development

In otosclerosis tympanosclerosis labyrinthosclerosis otospongiosis cicatricial otitis and tubal catarrh there is frequently a hyper  mia All of the medical treatments of otospongiosis consist of the use of a vasoconstrictor such as pituitary extract ergot or adrenalin The surgical procedures suggested such as ligation of the external carotid or the middle meningeal artery have a similar purpose Most of the methods usually employed to induce vasoconstriction are soon followed by vasodilatation

The author advocates the local application of the high frequency current which produces vasoconstriction through its action on the sympathetic Terracol has shown that the auditory apparatus is dominated by the cervical and periarterial sympathetic and is susceptible to vasomotor reactions

Among the chronic progressive types of deafness may be included those based on hyper  mia due to an endogenous toxemia (azot  mia uric  mia glyc  mia oxal  mia cholesterin  mia) and those based on hyper  mia due to an exogenous toxin (quinine salicylates alcohol tobacco) which increases arterial tension

The ordinary alternating current may be stepped up by a special apparatus to a voltage of from 30 000 to 40 000 and a frequency per second of from 2 000 000 to 3 000 000 The current is applied by a special condensing electrode to the external auditory canal The treatment lasts ten minutes and is carried out every day for from eight to fifteen days

The indications for the treatment are all types of deafness due to non suppurative otitis tubal catarrh otospongiosis otosclerosis and adhesive complications after suppurative otitis

The contra indications are convalescence from a suppurative otitis media (the ear should not be treated with the high frequency current unless there has been freedom from discharge for a month or so) and the presence of vertigo an indication of labyrinthitis

The author reports briefly thirteen cases of different types of deafness which were treated with the high frequency current and in which objective tests seem to indicate considerable improvement in hearing

ing It appears that the functional types of deafness based on disturbances of the sympathetic are most favorably influenced by this type of treatment

JACO L KLEIN M D

Guild S R Early Stages of Otosclerosis  
Otol 1930 x 457

The author is of the opinion that otosclerotic change may be in as early as the end of the first year of postnatal life

The site of the first changes near the anterior margin of the oval fenestra is not the same in all cases and the fissure in front of the fenestra is not always involved in the beginning of the pathological process

Before ankylosis occurs a sulcus in the surface of the otosclerotic area near the margin of the oval fenestra is frequently present This sulcus is filled with dense fibrous tissue which extends across and fill the intervening space between the wall of the fossa of the oval fenestra and the medial end of the anterior crus of the stapes In some cases at least ankylosis begins by the formation growth and coalescence of scattered areas of calcification in the dense fibrous tissue and in the annular ligament An area of otosclerosis may appear near the anterior margin of the oval fenestra grow to considerable size and become quiescent without the formation of calcified connections to the foot plate of the stapes

Ankylosis must be well started before a clinical diagnosis of otosclerosis is possible by the methods of examination in use at the present time

JAMES C BRASWELL M D

Weber M The Bone Picture of Otosclerosis The Theory of Its Experimental Reproduction  
Otol 1931 x 93 68

Weber states that the bone picture of otosclerosis is identical with the bone picture of a localized osteodystrophy fibrous and that biochemical analyses have always shown otosclerosis to be accompanied by a general endocrine disturbance of metabolism which might directly exert an influence on the general bony system The relationship of otosclerosis to osteomalacia pregnancy and Gaucher's disease may be explained by the assumption that the generalized disturbance of metabolism does not always have the same general biochemical aspects

JAMES C BRASWELL M D

## NOSE AND SINUSES

Stewart D and Lambert V The Sphenopalatine Ganglion  
J L 1931 & Otol 1930 1 753

Formerly the sphenopalatine ganglion was believed to be the cause of many obscure headaches but today doubt has arisen as to its relationship to many of the symptoms once ascribed to it The authors conclude that a trophic influence exerted on the nasal mucosa by the ganglion is not supported by experimental evidence They emphasize that any phenomenon produced by treatment of the

region of the ganglion cannot be separated from the effects of involvement of the nerves of the sphenopalatine region as a whole

Attention is called to a type of neuralgia pain about the head and neck which differs from true tic douloureux due to nasal infection but the neurological nature of which is obscure

GEORGE R McVILLIFF M D

Rosen R D Plastic Surgery on the Nasal Pyramid Sheehan and Gillies (Cirurgia plástica da lámina nasal móvel de Sherrill) R med L 1930 x 555

The author states that this article is based on a review of the literature and a careful study of the work of Sheehan and Gillies He describes the anatomy of the nose in detail and discusses the origin of congenital and acquired nasal deformities

Nasal deformities are corrected by reduction retraction or replacement Special emphasis is placed on the importance of careful preparation of the patient regardless of the extensiveness of the surgical intervention or whether the deformity is due to a defect of the bridge the septum the tip of the nose or the alae After the application of a vasoconstrictor a complete intranasal examination should be made Roentgenographic examination of the paranasal sinuses and a Wassermann test are essential Whenever an inflammatory process is present in either the nose or the nasal accessory sinuses surgical intervention is contraindicated

The steps of the different operations are described and profusely illustrated with drawings and photographs The author believes it important to inform the patient before the operation regarding the edema and discoloration of the eyelids which will be produced by the operative trauma and will last from one to two weeks When this edema is excessive it can be controlled by the application of hot compresses of a solution of 5 per cent magnesium sulphate and the administration of 15 drops of chloride of iron every two hours for several days after the operation Iron sulphate may also be used in the form of compresses Oily applications will prevent the formation of crusts A fresh solution of 5 per cent argyrol should be applied every twelve hours

The author describes the operative technique for the correction of an exaggerated convexity deviation of the nose depression of the nasal bridge deformity of the tip of the nose and deformity of the alae and presents an original method the orthopedic suture which he uses to correct enlargement of the nose due to excess cartilaginous tissue He performs his operation under distant anesthesia which has the advantage of not deforming the field of operation He induces this anesthesia by an original procedure which consists in blocking the external nasal the nasal alar a branch of the internal nasal and the infra-orbital nerves The sites where the injections are made are shown in a drawing

P R CASSELLAS M D

Lewis E R. An Analysis of 100 Consecutive Nasal Sinus Cases Treated Conservatively. *Laryngoscope* 1930 xl 8 2

In 11 per cent of 100 cases of disease of the nasal sinuses the disturbances were limited to the respiratory tract whereas in 62 per cent they were evidently a local manifestation of a general pathological condition.

Conservative treatment of nasal sinus disease includes surgical measures such as resection the removal of adhesions incision of the antrum of bullae and of the sphenoid the removal of polyps tonsillectomy and adenoidectomy. Non surgical measures include suitable exercises regulation of the diet the forcing of fluids alkalinization iodization the administration of salicylates physiotherapy and local treatment by tamponade. The author has obtained better results from conservative procedures than from radical treatment.

GEORGE R. McAULIFF M.D.

Eggeston A. A. The Pathology of Chronic Sinusitis. *Arch Otolaryngol* 1930 xii 56r

The blood supply of the nasal mucosa is particularly abundant and peculiarly sensitive to extrinsic and intrinsic changes. Pathological changes in the contiguous soft and bony tissues are secondary to vascular changes.

The chronic hypertrophic type of sinusitis is characterized by thickening and oedema of the mucosa and periosteum polypoid masses of soft tissue and osteoporosis of bone. The chronic atrophic type is characterized by an increase in the fibrous tissue with thickening of the periosteum and condensing osteitis. A third type of chronic sinusitis the result of a combination of the hypertrophic and atrophic types is characterized by rugae and sulci and a papillated membrane.

GEORGE R. McAULIFF M.D.

Brown R. G. The Sarcinopathological Interpretation of the X Ray Appearances of Antral (Highmore) Diseases. *J. College Surg* 1930 lxxi 131

The author urges co operation between the surgeon and the roentgenologist in the diagnosis of pathological conditions of the antrum of Highmore. Accuracy in diagnosis is increased by attention to the position in which the roentgen exposures are made stereoscopic views a comparison of both antra and consideration of the roentgen ray findings in relation to the findings of physical examination.

The roentgen plates will show alterations in the bony walls resulting from malignancy trauma from foreign bodies erosion by dental cysts osteitis osteomata and previous operations. Changes in the contents of the antra are found in cases of acute and chronic inflammatory conditions cysts hydrops calculi and cholesteatomata and other tumors.

GEORGE R. McAULIFF M.D.

## MOUTH

De Mello C. A Method of Operation for Perforations of the Hard Palate and for Cleft Palate. (Eine Operationsmethode der Perforationen des harten Gaumens bzw der Gaumenspalten). *Passow Schaeffers Be tr* 1930 xxi 11 120

For the closure of palatal clefts or of perforations of the hard palate the following modification of the old Langenbeck operation is recommended.

1. A crescentic incision down to the bone is made close to the alveolar border from the lateral incisor on one side around to the same point on the other side. The mucosa and periosteum are then loosened posteriorly for a distance of 1 cm. The pocket thus formed is tamponed with iodoform gauze and the tampon is changed every second day.

2. Six days later the borders of the cleft or perforation as the case may be are freshened and the ends of the crescentic incision are prolonged to the hamulus pterygoideus keeping close to the alveolar border. The mucoperiosteal flap thus outlined is then loosened inward to the freshened edge of the perforation or cleft so that the entire buccal covering of the hard palate is mobilized.

3. The tongue shaped flap which has been formed is allowed to fall backward and is sutured to the freshened edges of the defect with catgut from above (i.e. the needle is introduced from the nasal surface) so that only the periosteum and a part of the nasal mucosa are pierced. The catgut should not come into contact with the buccal surface of the mucosa.

4. Incisions to decrease tension are frequently made in the nasal surface of the flap. They do not penetrate entirely through the flap to the buccal surface. After compression by gauze for a time the tongue shaped flap lies easily on the surface of the hard palate. In adults it is usually unnecessary to suture the flap to the edge of the mucosa along the alveolar border.

In the nine cases operated upon in this manner up to the present time the results have been satisfactory. HAERGER (Z).

## NECK

Thurmon F. M. and Thompson W. O. A Low Basal Metabolism Without Myxoedema. *Arch Int Med* 1930 xli 879

Frequent observations were made on 196 patients with a basal metabolism of from 11 to 45 per cent below the average normal (in only 8 was it lower than -25 per cent) but no oedema could be detected.

At least 11 patients could be considered normal (with basal metabolic rates varying from -11 to -24 per cent) but it was often difficult to decide whether a patient was normal or abnormal.

In 13 there appeared to be underfunction of the thyroid which apparently was too mild to result in myxoedema (so called hypothyroidism without myxoedema).

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Forbus W D On the Origin of Millary Aneurisms of the Superficial Cerebral Arteries B H J I  
H p k H p B l t 930 x l n 39

This article is limited to a discussion of the so-called congenital or multiple millary aneurisms of the superficial arteries of medium size at the base and in the sulci of the brain

The author reports the case of a negro twenty four years of age who died on the day of onset of an acute illness associated with loss of consciousness and retraction of the head Autopsy disclosed a subarachnoid and an intraventricular hemorrhage due to the rupture of a small aneurism In addition four small unruptured aneurisms were found All of the aneurisms occurred in vessels belonging to the carotid system On histological examination the aneurismal sacs were found to consist of a thickened intima they showed no elastic or muscular layers The dentin varied in thickness and in places showed hyaline characteristics There was no evidence of acute or chronic inflammation The aneurisms were all located at points of bifurcation of the vessels

A study of other vessels in the same system which were free from aneurisms revealed a peculiar defect in the muscularis at the apex of each angle formed by division of the vessel No similar defects were found at points other than these bifurcations or in vessels belonging to other systems No inflammatory changes were evident in association with the defects The locations of the defects corresponded to those of the aneurisms

Of a series of seventy other autopsies in which the cerebral vessels were examined aneurisms of these vessels were found in twelve Of thirty five cases without aneurisms which were chosen at random twenty five showed a medial defect at the bifurcation of the vessels examined In some of these similar defects were found also at the bifurcation of vessels of the coronary and mesenteric arteries Whenever such defects were discovered in the latter locations they were always found also in the brain but defects in the brain were often unassociated with defects in the coronary or mesenteric arteries The defects occurred with equal frequency at all ages They did not appear to be associated with inflammatory lesions although cases with meningeal inflammation which were selected for study also showed the defects

Having convinced himself that the defects are not due to inflammation degeneration or arteriosclerosis and having proved their congenital character by demonstrating them in a stillborn child

the author set about to study the mode of their development In studies of the development of the aorta and its branches in the embryo he found that the muscularis is formed by a condensation of mesenchymal cells which happen to be present around the aorta and later of similar quite independent cells located around the given branch He believes that the independent origin of this layer for the main vessel and its branches may account for the defects and that the defects act as areas of diminished resistance in the vessel where the formation of aneurisms is favored

In experiments carried out with systems of glass tubing in which the pressure of a stream of fluid was measured at different points it was found that the maximum pressure in the vessel wall under normal conditions of circulation corresponds to the usual sites of defects in the muscularis It therefore appears that the hammering of the blood against these points of lowered resistance eventually brings about a gradual wearing away of the internal elastic layer which results in outpocketing of the vessel wall  
LEO M DA MONT MD

Courville C B and Adelstein L J Intracranial Calcification with Particular Reference to That Occurring in the Cerebrum I A S G  
93 8

This report is based on ten cases of verified and two cases of unverified primary brain tumor In five of the verified and in both of the unverified tumors the calcification was demonstrated by roentgen examination In the five other it was found on histological examination In five of the cases of verified tumor the neoplasm was a spongioblastoma multiforme In two of the others the deposits were seen in the roentgenogram

The authors discuss the appearance of calcification in the cranial cavity under physiological and pathological conditions  
LEO M DAVIDOFF MD

Dunn J T Postoperative Accidents in Cerebral Surgery (Lyon's ed. p. 1064) 1931 1249  
C. C. H. P. S. H. J. R. 1931 1249

The author takes exception to the statement of Harr and Fontaine that there are several postoperative neurological syndromes He believes there is only one The clinical symptoms are fever, coma and hypertension of the cerebrospinal fluid The temperature rises very rapidly in a few hours and in fatal cases the patient dies in coma This syndrome is due to obstruction of the flow of fluid by pressure which causes injury of the centers on the floors of the third and fourth ventricles

A patient in coma with a high fever and beginning respiratory disturbances may be restored very

quickly by an intravenous injection of a hypertonic solution of magnesium sulphate. This empties the ventricles by osmosis and decreases the volume of the brain. The hypertension may be caused either by hypersecretion or by defective absorption of the spinal fluid. The fever may be treated directly by the application of wet packs or irrigation of the intestine with cold water. The hypertension may be treated by lumbar puncture or better by atlanto-occipital puncture. If it persists in spite of this treatment a ventricular puncture must be done. Ventricular and lumbar puncture should be accompanied by the intravenous injection of a hypertonic magnesium sulphate solution. This solution should be used with caution and injected slowly. The patient should be put in the Trendelenburg position so that the cerebellum will be freed from the occipital foramen if it has become engaged in the latter. When the blood pressure is low the prognosis is poor. In cases with a low blood pressure injections of adrenalin and hypophylin are indicated. The author gives such injections prophylactically from the beginning.

Patients must be watched very carefully after brain operations. The rectal temperature should be taken every hour and if it rises treatment should be begun at once. The patient should have nurses especially trained in neurosurgical nursing because nurses accustomed to general surgical nursing will almost invariably relax their attention as soon as the patient seems to be doing well and this is dangerous in neurosurgical cases. The author has a special room for his brain surgery cases with specially trained nurses and everything ready for lumbar and ventricular punctures and intravenous injections.

AUDREY G. MORGAN, M.D.

**Paton, L.** Classification of the Optic Atrophies.  
*Proc. Roy. Soc. Med. Lond.* 1930, xiv, 25.

According to Paton primary atrophy of the optic nerve is caused by a toxin or trauma acting directly on the fiber and killing it. Secondary optic atrophy is that form in which the death of the optic fibers is the result of inflammation or degeneration of other structures on which the nerve is dependent or which from their anatomical relationships to the nerve can produce injury to its fibers. To contrast the text-books define primary optic atrophy as atrophy in which the optic disk shows no evidence of antecedent papillitis or oedema and secondary or consecutive atrophy as atrophy in which the optic disk shows evidence of an antecedent oedema or papillitis.

Paton classifies optic atrophies as (1) those of localized origin (2) those of diffuse or indeterminate origin and (3) those of unknown origin. He subdivides the optic nerve into three portions (1) the retinal (2) the papillary and (3) the retrobulbar. The retrobulbar portion he subdivides into (1) the orbital (2) the foraminal and (3) the intracranial. According to this classification optic atrophy of localized origin is of three main types and the retrobulbar group has three subdivisions.

Each of the main types of atrophy may be the after effect of acute or chronic inflammations or of degeneration. The degeneration may be produced locally by pressure or traction or may be a systemic degeneration of unknown origin or consequent on vascular insufficiency.

The three main types of optic atrophy are discussed. In atrophy resulting from retinal degeneration the disk usually presents a clear outline and a waxy surface. The most important feature is the extreme diminution in the caliber of the vessels. Of this type are the primary atrophies associated with retinitis pigmentosa, amaurotic family idiocy and cerebromacular degeneration and the numerous forms of secondary retinal atrophy consequent on retinal and choroidoretinal inflammation and vascular degenerations. These may affect either the peripheral or the central portions of the retina or both simultaneously.

In the papillary atrophies the initial damage to the nerve fibers takes place at the disk itself. Of this type are the atrophies due to glaucoma, papillitis, and papilloedema and a rarer group in which a cavernous degeneration in the disk tissues occurs in high myopes. Atrophy resulting from traumatic avulsion of the optic nerve also belongs in this group.

Atrophies due to retrobulbar lesions form the largest group and may be classed as orbital, foraminal or intracranial. The author refers to inflammation of any portion of the optic nerve as being interstitial or parenchymatous. One of the most common forms of parenchymatous inflammation is disseminated sclerosis. Other causes of atrophy due to retrobulbar lesions are postinfluenzal myelitis, syphilitic myelitis, Malta and blackwater fever, postherpetic neuritis and postvaricellar neuritis.

Intraocular or extraneural tumors acting on the orbital portion of the optic nerve may cause optic atrophy. A gumma at the apex of the orbit may cause pressure on the nerve.

The most frequent cause of foraminal lesions giving rise to optic atrophy is trauma. Optic atrophy occurring in oxycephaly may be the result of the narrowing of the optic foramen or may develop coincidentally with the skull deformity as the result of early meningitis. Bony thickening in Paget's disease may cause optic atrophy by reducing the caliber of the optic foramen.

The main intracranial form of atrophy is the pressure atrophy caused by growths especially in the pituitary and suprapituitary regions or on the base of the frontal lobe or the anterior end of the temporal horn of the lateral ventricle. Atrophy may be caused by disseminated sclerosis, meningitis, basal aneurism or sclerotic changes in the internal carotids acting on the intracranial portion of the optic nerve.

Optic atrophy may be caused also by substances with a general toxic effect such as tobacco, arsenic, lead, methyl alcohol, carbolic acid, bisulphide, quinine and aspidium filix mas. Of this type are the optic atrophies which occur in association with other systemic degenerations in the central nervous system.



such as Friedreich's disease, peroneal atrophy and hereditary cerebellar atrophy.

Tubercles cause optic atrophy of two types. In one the parenchymatous degeneration is predominant whereas in the other the interstitial proliferation is more obvious.

The primary divisions of the author's classification are based on the site of attack of the primary lesions and are subdivided on the basis of the nature of the lesion.

R. DE TOLLI, GR. M.D.

## PERIPHERAL NERVES

London P. A Contribution to the Study of Ascending Posttraumatic Neuritis of the Extremities (C. n. l. t. n. a. l. t. u. l. l. l. a. n. r. t. e. c. l. t. p. o. t. t. m. t. q. u. d. m. e. m. b. Th's. I. M. I. p. e. l. l. o. j. ) P. r. m. d. l. 93 v. 3

Although the clinical picture of ascending neuritis first described by Hunter in 1830 is now well known the pathological anatomy of the condition is still obscure and our conceptions of its pathogenesis are not completely satisfactory. The rarity of neuritis as compared with suppurations the development of ascending neuritis following trauma not causing an open lesion and the results of experimental investigations indicate that the condition is not due to common bacteria. The theory that the sympathetic is a causal factor does not explain the findings and has an uncertain basis. Pain however it seems to have been definitely proved that certain viruses are able to use the nervous pathways to ascend to the principal centers.

The author suggests the possibility of a relationship between ascending neuritis and tetanus. In both conditions the portal of entry of the infection is a traumatic lesion and the mode of extension along the nerve paths and the pain are similar. Moreover the lesions in ascending neuritis correspond to those found in the medulla in tetanus.

Up to the present time experimental investigation has not furnished the author with positive arguments but she reports two cases which are of interest from the point of view of her theory.

In the first case a wound of the left index finger was followed by painful crises and paroxysmal spasms. Antitubercular serotherapy resulted in cure. In discussing this case London states that we may suppose that Colombino's being obstructed in its progress toward the upper nerve centers by a previous preventive inoculation the toxin became localized in the peripheral nervous system where the slowest action produced a deeper involvement of the nerve than would have been the case if it had been a mere vector as in generalized tetanus. With regard to the curative action of the serotherapy she cites the work of Billard which showed that neurotrophic substances may oppose the fixation of neurotoxin on the nerves. Therefore to explain the development of the ascending neuritis in this case reported it is necessary to admit the presence of an unknown neurotrophic virus at the site of the trauma.

In the second case reported a ascending neuritis which followed a puncture of the left thumb and resulted in generalized tetanus was cured by serotherapy. In discussing this case the author says that it is necessary to assume either weakness of the toxin or resistance of the subject who showed hypercholesterolemia.

London concludes that in some cases ascending neuritis may be the expression of a latent form of tetanus and that serotherapy should be tried before surgery as it may be effective by exerting a specific action or causing non specific immunization.

ANDRÉ GUTBAL

Keschner M. and Berman R. W. The Late Ulnar Nerve Lesion in the Elbow. J. E. R. C. 93 v. 3

Keschner and Berman review the literature on late inflammation of the ulnar nerve and report a case in which the condition developed thirty years after a fracture of the elbow. This type of neuritis seldom affects other nerves. Its chief cause appears to be frequent trauma to the ulnar nerve in the vicinity of the elbow joint. In none of the cases reported in the literature was the site of trauma at any considerable distance from this joint.

Signs of ulnar neuritis appearing a number of years after an injury of the elbow especially in the presence of deformity at the elbow establish the diagnosis immediately. The motor fibers appear to be much more vulnerable to this type of injury than the sensory fibers and in the presence of marked interosseous and hypothenar atrophy there may be only slight interference with sensory function in the ulnar areas. Paresthesias are frequently the first symptoms of the neuritis. A thickened tender nerve is often palpable behind the intercondylar condyle. In cases with advanced muscular wasting the wasting may be mistaken for progressive muscular atrophy but the absence of fibrillations and the presence of sensory signs will usually eliminate the latter. In early cases roentgenography may be necessary to exclude cervical rib.

Surgical intervention is the only satisfactory treatment. The nerve should be freed from constricting bands and all masses causing pressure upon it should be removed. When the condition is the direct result of cubitus valgus deformity with narrowing of the ulnar canal the surgical procedure must be directed toward the osseous structures. In certain cases anterior transposition of the ulnar canal to a position in front of the median epicondyle is the operation of choice. In general good results may be expected from operation if the neuritis has not progressed too far and electrical stimulation does not show a reaction of complete degeneration.

ROBERT ZOLLIG, M.D.

Evans W. I. The Role of Epidural Injections in the Treatment of Sciatica. L. C. I. 93 v. 3

The author divides cases of sciatica according to the usual classification into two types those of symptomatic sciatica in which involvement of the sciatic

nerves or their roots by neoplasms in the pelvis or disease of the hip sacro iliac joint or lumbosacral vertebrae can be demonstrated and those of idiopathic sciatica in which no cause can be found.

This article is based on forty cases of idiopathic sciatica which were treated by intrasacral epidural injections. All of the patients gave a history of acute onset of the condition with the recognized symptoms. The duration of the symptoms before the patients were seen by the author ranged from five days to eighteen months. The treatments which had been tried included internal medication, the external application of counter irritants, massage, ionization, electrical therapy, hot baths, stretching of the nerve under general anesthesia, injections of oxygen or saline solution along the course of the nerve and splinting of the affected limb.

The author describes the technique of the epidural injections. In the forty cases reviewed forty seven injections were made. From 60 to 145 c cm. of a 1 or 2 per cent solution of novocain, saline solution or a combination of novocain and saline solution were used.

Sixty one per cent of the patients obtained immediate and permanent relief. 13.0 per cent were benefited temporarily, 19.4 per cent were benefited temporarily, and 5.6 per cent were not benefited.

The results did not seem to depend on the quantity of fluid used within the limits stated nor upon the character of the fluid.

By measurement of the intrathecal pressure with a spinal manometer at the time of injection and by experiments on cadavers the author found that the injected mass displaces the dura upward and forward thereby stretching the intrasacral roots.

LEO M. DAVIDOFF, M.D.

### SYMPATHETIC NERVES

Morton J. J. and Scott W. J. M. Studies of the Activity of the Lumbar Sympathetic Nervous System. *Ann Surg* 1930 xcii 99.

As spinal anesthesia chemically blocks off all central impulses including those which are autonomic the authors carried out investigations to determine whether it might not be of value in showing the benefit to be expected from operative interruption of these impulses in pathological conditions.

In several cases of Hirschsprung's disease the previously atonic intestine exhibited excellent expulsive power with peristaltic rushes after the induction of spinal anesthesia. Similar results were noted also in experiments on cats.

In studies of vasospasm in the extremities it was found that spinal anesthesia is usually followed by a sharp rise in the surface temperature of the feet. The occurrence of only a slight elevation is an indication that the vasodilatation is already at its maximum or that no sympathetic vasoconstriction is present at the time of the examination. Patients suffering from an organic vascular disease associated with vasospasm such as thrombo angitis obliterans

show a moderate to marked rise in surface temperature following spinal anesthesia.

Spinal anesthesia proved to be of great value also in the differentiation of true pain of sympathetic origin from psychoneurosis.

So far no specific functional tests have been devised for trophic ulcerations, traumatic arthritis and edema, non specific polyarthritis or states of nervous origin such as poliomyelitis. Vasoconstriction has been demonstrated in these conditions but its significance is not known.

The authors review also several cases of spina bifida with sensory impairment in the lower extremities. In one of them lumbar sympathectomy was done as treatment for atrophic ulceration and in the other as a prophylactic measure against trophic ulcerations.

From their findings the authors conclude that by means of spinal anesthesia it is possible to study the large bowel and the peripheral vascular system of the lower extremities freed from sympathetic activity and thereby to determine whether operative interruption of the sympathetic nerves will be beneficial in pathological conditions of these parts.

ROBERT ZOLLINGER, M.D.

Weigner K. The Anatomical Fundamentals of Surgery of the Sympathetic System (*Anatomische Grundlagen der Sympathicuschirurgie*). *Roht Chir u Gyn ek* 1930 ix 66.

The author first attempts to give a historical account of the development of our knowledge of the sympathetic and parasympathetic systems. He then states that the sympathetic nerves do not differ essentially from the cerebrospinal nerves. Absence of the medullary sheath is not characteristic nor is it possible to distinguish macroscopically whether the fibers are afferent or efferent. Furthermore pathological changes in the sympathetic nervous system have not been investigated systematically up to the present time. Only from the reaction to different chemical substances such as nicotine or adrenalin is it possible to determine whether a viscus is innervated by sympathetic or parasympathetic nerves. This cannot be demonstrated anatomically as yet. The author then discusses the properties of the nerve fibers, the nature of their network, and the sympathetic ganglia.

With regard to ramicotomy the author states that the nerve fibers of the sympathetic system should be included with the rami communicantes as both afferent and efferent fibers are contained therein. After their entrance into the sympathetic trunk, the nerve fibers in the rami communicantes are both ascending and descending and end in the sympathetic ganglia. How far they extend can be shown only by experiments, namely division and secondary degeneration. This can be observed only in the nerve fibers with a myelin sheath, the others apparently degenerate with great difficulty.

The blood vessels are innervated by both the cerebrospinal and the sympathetic nerves. The

such as Friedreich's disease, peroneal atrophy, and hereditary cerebellar atrophy.

Tabes causes optic atrophy of two types. In one the parenchymatous degeneration is predominant whereas in the other the interstitial proliferation is more obvious.

The primary divisions of the author's classification are based on the site of attack of the primary lesions and are subdivided on the basis of the nature of the lesion.

R. HERT ZOLL GEE, M.D.

## PERIPHERAL NERVES

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ing Posttraumatic the Neuritis of the E. tre niti s  
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The author suggests the possibility of a relationship between ascending neuritis and tetanus. In both conditions on the portal of entry of the infection is a traumatic lesion and the mechanism of tension along the nerve paths and the pain are similar. Moreover, the lesions in ascending neuritis correspond to those found in the medulla in tetanus.

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In the first case a wound of the left index finger was followed by painful crises and paroxysmal spasms. Antitoxin therapy resulted in cure. In discussing this case Lyon states that we may suppose with Colombi no that being obstructed in its progress toward the upper nerve centers by a previous preventive inoculation the toxin became localized in the peripheral nervous system where the slowness of its action produced a deeper involvement of the nerve than would have been the case if it had been a mere vector as in generalized tetanus. With regard to the curative action of the sero-therapy, since the work of Billard which showed that neurotropic substances may oppose the fixation of neurotoxins on the neurax. Therefore to explain the development of the ascending neuritis in the case reported it is necessary to admit the presence of an unknown neurotropic virus at the site of the trauma.

In the second case reported ascending necrosis which followed a puncture of the left thumb and resulted in generalized tetanus was cured by *sero* therapy. In discussing this case the author says that it is necessary to assume either weakness of the toxin or resistance of the subject who showed hypochlosterinaemia.

London concludes that in some cases ascending neuritis may be the expression of a latent form of tetanus and that serotherapy should be tried before surgery as it may be effective by exerting a specific action or causing non-specific immunization.

## ACKNOWLEDGMENTS

Keschnick M and Birman W Tardy Late  
Ulna Neuritis Mid J & R c 03 c 55 480

Keshner and Berman review the literature of late inflammation of the ulnar nerve and report a case in which the condition developed thirty years after a fracture at the elbow. This type of neuritis seldom affects other nerves. Its chief cause appears to be frequent trauma to the ulnar nerve in the vicinity of the elbow joint. In none of the cases reported in the literature was the site of trauma at any considerable distance from this point.

Signs of ulnar neuritis appearing a number of years after an injury of the elbow are peculiar in the presence of deformity at the elbow establish the diagnosis immediately. The motor fibers appear to be much more vulnerable to this type of injury than the sensory fibers and in the presence of marked interosseous and hypothenar atrophy there may be only slight interference with sensory function in the ulnar areas. Tarsal tunnel is frequently the first symptoms of the neuritis. A thickened tender nerve is often palpable behind the internal condyle. In cases with advanced muscular wasting the wrist may be mistaken for progressive muscular atrophy, but the absence of fibrillations and the presence of sensory signs will usually eliminate the latter. In early cases roentgenography may be necessary to exclude cervical rib.

Surgical intervention is the only satisfactory treatment. The nerve should be freed from constricting bands and all masses causing pressure upon it should be removed. When the condition is the direct result of cubitus valgus deformity with narrowing of the ulnar canal the surgical procedure must be directed to the osseous structures. In certain cases anterior transposition of the ulnar canal to a position in front of the median epicondyle is the operation of choice. In general good results may be expected from operation if the neuritis has not progressed too far and if electrical stimulation does not show a reaction of complete degeneration.

ROBERT ZOLLINGER M D

En W Int aeral Epidur l Injecti n in the  
F at m nt f Sciatic L f 93 c 5

The author divides cases of sciatica according to the usual classification into two types: the one of symptomatic sciatica in which involvement of the sciatic

is completely or partially established pain while the subject is at rest may cease and pain on active motion may be alleviated wholly or in part

Failure of the operation has been most apparent in joints particularly in painful hips which still were movable but in which there were marked caseous changes

For the present at least the authors advocate the operation for the type of arthritis described namely periarthritic arthritis with evidences of neurocirculatory phenomena which reacts to the administration of typhoid vaccine with a high vascular index In some cases of this type the results as far as the hands and feet are concerned seem gratifying

### MISCELLANEOUS

Teissier P and Chavany J A The Treatment of Cerebrospinal Meningitis (Considérations sur le traitement actuel de la méningite cérébrospinale) *Presse med* Par 1030 xxviii 13 1

Failure of treatment of cerebrospinal meningitis is frequent The usual treatment is the injection of polyvalent or monovalent anti meningococcus serum

by lumbar puncture as often as indicated by clinical examination and study of the spinal fluid

Among the factors which are believed to contribute to failure are youth of the patient (newborn infants are most susceptible to meningeal infection) virulence of the organism (the B variety is resistant to serotherapy) secondary infection of the spinal fluid by streptococci or pneumococci the formation of adhesions and recurrence induced by meningococci which have found lodgement in the rhinopharynx internal ear or near the meninges

The authors report their experience in ten cases of cerebrospinal meningitis in which complete recovery resulted and describe their technique for lumbar suboccipital and ventricular puncture In four of the cases reported the treatment consisted solely of serotherapy in two of serotherapy combined with protein therapy in one of spinal and intravenous injections of gonacrine and in three of a combination of all of these methods

The authors emphasize the necessity for repeated puncture of the spinal canal at various levels and the substitution of another method of treatment for the method used first if the latter does not give satisfactory results

JACOB E KLEIN M D

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Orbach F Bleeding Nipple (Mam ad Mam II)  
7 1 161 f Cl 93 p 6

The bleeding nipple differs clinically from the bleeding breast in that in the former the hemorrhage has its origin not in the mammary gland tissue but in the nipple itself. The author reports the case of a sixteen year old girl who found traces of blood on her clothing for a period of four weeks and in the ten days just before her entrance to the hospital had three more severe bleedings. The last hemorrhage occurred fourteen hours before her admittance to the hospital.

The left nipple was extirpated and the wound sutured. Healing took place by first intention.

Histological examination disclosed an ulcer with hemorrhagic diphtheritic inflammation. The degenerative change was limited to the nipple and was caused by nutritional disturbances. No sign of tumor (fibroma or carcinoma) could be found. There was a bloody secretion of the nipple the hemorrhage being caused by the erosion resulting in the trophic ulcer. I GLASS (Z)

Mintz W Are We Justified in Admitting Amputation in Case of Bleeding Breast? (Am J Surg 1931) 1 1 161 f Cl 93 p 6

The author states that as early as 1911 he recommended radical operation in cases of bleeding breast especially in the cases of women of climacteric age. From the large material which he has seen in the subsequent eighteen years he concludes that all bleeding breasts are organically diseased and that malignant degeneration may supervene in such breasts at any time. A palpable tumor need not necessarily be present as carcinoma may be found on microscopic examination of bleeding breasts which show no macroscopic changes. In the case of a man in his eightieth year old who was treated by the author partial excision was followed by vertebral metastasis a year later although the microscopic findings in the specimen did not reveal malignancy.

Every case should be studied carefully to determine whether amputation should be done. Not in the cases of women in the fifth decade of life the author has always amputated. None of the examined specimens of bleeding breasts were found normal.

In the cases of women between twenty and thirty years of age and those with bilateral involvement the question of mutilation makes the decision difficult. Not even constant re-examinations are burdensome to the patient and may lead to depression. A POLYMER (Z)

Leattle Sir L The Primary Tumor in Breast Carcinoma C 1 1 161 f Cl 93 p 6

It is common to describe the carcinoma that can be felt in the breast as the primary growth and all epithelial cells that have reached lymphatic glands and tissue elsewhere as secondary deposits. However the primary tumor occurs in the ducts and acini and the cells in the connective tissue of the breast are in secondary deposits which often make it impossible to detect the site of the primary growth.

The grading of carcinomata should be based on the structure, nature and characteristics of the primary tumor. Grading is impossible when the lesion is at all advanced because the primary site becomes lost in the growth of the lesion and when the cells have invaded they lose their shape.

WILLIAM J. S. CLETON, M.D.

## TRACHEA LUNGS AND PLEURA

Brown H and B III S Observations on Postoperative Pulmonary Atelectasis S 1 1 161 f Cl 93 p 6

The most important single cause of postoperative pulmonary atelectasis is bronchial obstruction. Chief among other causes are paralysis of the diaphragm and inability of the respiratory muscles to function properly.

The treatment is both prophylactic and active. Prophylactic treatment includes intrabronchial drainage by posture, carbon dioxide inhalation and bronchoscopic aspiration. Active treatment consists in the removal of bronchial pus. This is best done through the bronchoscope. The prognosis is good except in cases with complications.

The authors do not believe that all postoperative pulmonary complications except the embolic types are of the same nature. They report a case in which the clinical, roentgen-ray and bronchoscopic findings showed the condition to resemble lobular pneumonia. I ALLAN G. ELEY, M.D.

Amber on J B Jr The Indications for and the Result of Artificial Pneumothorax in Pulmonary Tuberculosis I 1 161 f Cl 93 p 6

Alexander J Pleuritic and Intercostal Neuromy for Pulmonary Tuberculosis I 1 161 f Cl 93 p 6

Brown P K The Complication in the Treatment of Pulmonary Tuberculosis I 1 161 f Cl 93 p 6

Wobb G B General Consideration of the Role of Surgery in Pulmonary Tuberculosis I 1 161 f Cl 93 p 6

AMPBROSE reviews 156 cases in which pulmonary tuberculosis was treated by artificial pneumothorax.

and re expansion of the lung had occurred an average of five years before the follow up study. In 89 cases healing was good and the cavities were permanently closed. Seventy eight (87 per cent) of the patients with good healing were still living and 56 were able to work and lead normal lives. In 76 cases healing was incomplete and the cavities were not entirely closed on re expansion. Only 35 (41 per cent) of the patients with incomplete healing were still living and only 36 (4 of whom had later surgical treatment) were able to live normally.

These findings bear out the general belief that when pneumothorax collapses the lung adequately and is continued long enough it restores a majority of the patients who otherwise would be destined for an early death or at best permanent disability. The necessary duration of the artificial pneumothorax has been a difficult problem. The total duration of the treatment is not so important as the duration of the treatment after the cavity has become closed and the sputum negative. Depending upon a number of variables Amberson's patients did well after re expansion if the lung had been satisfactorily collapsed and the cavities kept closed for from one and a half to two years. As it often took months to close the cavities the average total length of the treatment in cases with successful results varied from two to three years.

ALEXANDER states that an increasing number of surgeons prefer diaphragmatic paralysis to pneumothorax especially for unilateral lesions in which the cavities are such that phrenicectomy can be expected to close them. He believes there are fewer complications after phrenicectomy expertly performed than after pneumothorax. Another advantage of phrenicectomy is that a single procedure replaces the numerous injections required for pneumothorax. Phrenicectomy does not prevent a later pneumothorax. Temporary diaphragmatic paralysis can be obtained by crushing the phrenic nerve instead of evulsing it. Alexander does not think that bilateral phrenicectomy has yet been proved safe. He therefore performs phrenicectomy only on the side which on account of adhesions is unable to accept pneumothorax. Bilateral cases may be treated by temporary interruption of the phrenic nerve first on one side and then on the other. Temporary interruption of the phrenic nerve is of value also in cases of hemoptysis. Diaphragmatic paralysis does not activate tuberculous lesions in the contralateral lung. Alexander prefers resection of or 3 cm of the main phrenic nerve and of the accessory phrenic nerves to evulsion.

Lateral roentgenograms reveal the height of the paralyzed diaphragm better than the usual antero-posterior views.

From his experience in 6 clinical cases and his experimental work on dogs Alexander concludes that intercostal neurectomy may prove of more value than extrapleural thoracoplasty.

BROWN states that while large cavities may close entirely as the result of postural rest pneumothorax

phrenicectomy or intrapleural pneumolysis (Jacobeus) thoracoplasty should not be postponed too long in cases in which they fail to close under such treatment and in which there are constantly recurring hemorrhages. The deformity from complete unilateral thoracoplasty is neither an æsthetic nor an economic handicap. Alexander says that it should not be considered in a discussion of the relative merits of thoracoplasty and multiple intercostal neurectomy for when thoracoplasty is performed properly it is very slight.

WEBB states that for sixteen years he has advocated postural rest for unilateral lesions and the application of shot bags for bilateral lesions and he still believes this treatment should be tried first for from six months to a year.

His second choice of treatment is artificial pneumothorax but the results of this procedure are satisfactory in only a third of the cases. The pneumothorax must be maintained for at least three years. Thoracoplasty should be restricted to carefully selected cases. Webb emphasizes the importance of prolonged postoperative medical care. In his experience surgery does not markedly shorten the period of time that careful medical care is required. Whatever the operative procedure employed medical supervision must be continued for from three to five years. It must be borne in mind that tuberculosis tends to recur and regardless of the method adopted to place the diseased lung at rest permanent cure cannot be greatly accelerated several years being necessary to build up resistance.

RALPH B. BETTMAN, M.D.

Bonafe L. and Mollard H. The Digestive Disturbances Associated with Pneumothorax (Les troubles digestifs au cours du pneumothorax artificiel). *Presse Méd.* Par 1930 XVIII 1277.

Of 100 patients treated by artificial pneumothorax 35 lost weight during the three months following the insufflation without the development of new pulmonary or pleural lesions to account for the loss. Of these 35 patients 5 developed enteritis, 9 suffered from mild gastric or intestinal disturbances, and the others showed simply a transient state of malnutrition.

In the syndrome presented by the first group, a syndrome described by Dumarest and Brette, the appetite is good but after a small amount of food is eaten there is a sensation of fullness, the stomach seems quickly filled. This is the most common and the least serious symptom. To the sensation of fullness may be added abdominal distention which is most marked in the epigastrium. Gurgling is often noted and there may be pain of varying degree of severity in the left hypochondrium. These discomforts are aggravated by the recumbent position and after eating the patients are more comfortable when they walk about. At another stage vomiting may occur after eating either immediately or after some delay.

The cause of these phenomena may be a reflex dependent upon the common innervation of the

tumors were primary in the thorax and mediastinum in two, they were metastatic carcinomata and of unusual interest from the diagnostic standpoint because before operation they could not be distinguished from primary thoracic tumors. Harrington briefly summarizes the symptoms, methods of diagnosis, surgical treatment, and results to date in the entire series of twenty-four cases.

The symptoms and signs of thoracic growth depend upon the size and situation of the tumor in the thorax. Pain is the most common symptom and is usually the chief complaint for which the patient seeks relief. Horner's syndrome was present in three of Harrington's cases in which a malignant tumor, as found at the apex of the thoracic cavity. The symptoms in malignant conditions often simulate pleurisy. Dyspnea is more marked in cases of anterior mediastinal tumor than in cases of tumor of the posterior or lateral portions of the thorax. Cough is more marked in cases of tumor of the anterior mediastinum and cases of malignant tumor involving the lung. Vascular changes are not common; they are usually seen only in lesions of the upper part of the thorax and the anterior mediastinum.

The general examination is of the greatest importance in determining the condition of the patient and is always the deciding factor in determining the type of treatment to be instituted. Roentgen examination is the most important single method of diagnosing the presence of an intrathoracic tumor and of distinguishing between a malignant and a benign lesion. Fluoroscopic examination is of great value in determining the site of the tumor and its relation to the normal structures within the thorax. Bronchoscopic examination is of great aid in the differential diagnosis, particularly in ruling out primary intrabronchial disease and malignancy. Injection of the bronchial tree with iodized poppyseed oil may be of aid in distinguishing between intrapulmonary and extrapulmonary lesions. In selected cases, thoracoscopic examination may be of aid in determining the type and position of the tumor, but in most instances Harrington prefers to do an exploratory thoracotomy.

The surgical indications depend on the observations in the particular case, and there is no other condition in which the result depends so much on the strictest attention to detail in each step of the treatment. Postoperative care is very important.

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Gibson C I and Felter R K End Results of  
Inguinal Hernia Operations *Ann Surg* 1930  
vii 744

Operations for inguinal hernia are generally satisfactory as regards cure safety and relative freedom from complications. The mortality would be negligible but for the occurrence of pulmonary embolism a still unsolved problem.

Practically all young and healthy persons with hernia should be operated upon. However in the cases of very young children operation can usually be delayed as the danger of accidents is slight. In the cases of persons past fifty years of age—those in which the mortality and the incidence of failure to cure are highest—operation should usually be done only when there is a definite indication for it such as marked discomfort disability or strangulation.

The chief single cause of failure of operation is the sac. If the sac is easily identified and radically dealt with as in indirect hernia the results are good. In cases of direct hernia the sac is apt to be overlooked or improperly handled special forms of closure such as transplantation of the rectus are necessary and the patient is confined to bed for a longer time.

The incidence of recurrence is highest in cases of bilateral hernia operated upon in 1 stage. The authors operate upon difficult and extensive bilateral herniae especially those of the direct type in 2 stages.

When an insufficient operation has been done the failure becomes evident promptly 72.9 per cent of recurrences developing within nine months.

Of 1878 cases of hernia reviewed by the authors the Caillie operation was done in only 2. The authors doubt whether this operation is an improvement over the method in current use.

SAMUEL KAHN M D

Juvara E Transverse Incision of the Abdominal Wall the Sprengel Incision for Operations in the Hypochondrium (*L'Ann. Chir. et Ale. de la par. bdom. le linc. on de Sprengel pour le op. atio s. lan. les hypochondres*) *Bull. t. 1911*  
*S. 1911 d. chir.* 93 191 19

The procedures for cutting flaps in operations in the hypochondrium are numerous. They include the two Kehr incisions and the Hartmann Beven Mayo Robson Rio Branco Gray Czerny and Desjardins incisions. The author describes each of these incisions briefly. The simple incisions are the median longitudinal and the lateral longitudinal incisions the oblique incision of Kocher the Koerte incision and the Kausch incision.

The low transverse incision of Sprengel is undoubtedly the most advantageous for all operations

in the hypochondrium. The upper portion of the abdominal wall is a more or less acute angle framed by the costal margins. The high Sprengel incision is made in the area of this angle and the low Sprengel incision at the lower level of the triangle tangent to the angle of the costal margin or even lower. The high Sprengel incision has no advantage being too short and limited by the cartilaginous frame. In order that the low Sprengel incision may offer all of its advantages—light room reduction of the depth of the operative field and easy reconstruction of the abdominal wall—the operation must be performed on a modern table which permits rapid maneuvering of inclined planes in both directions.

The author describes the low Sprengel incision and its suturing in detail. The incision is made easily and rapidly and is opened up by placing the patient in extension by changing the planes of the table. It especially facilitates treatment of the pedicle of the spleen. The reconstruction of the abdominal wall is done conveniently by putting the patient in flexion. The extra minutes needed for the reconstruction of the abdominal wall are compensated for by the time gained in the operation. There is no comparison between the easy and exact reconstruction after the low Sprengel incision and the laborious and less exact reconstruction after the various flap incisions. When drainage is necessary the drain may be placed with more ease in the transverse incision than in the median incision. In the transverse incision its course is directed obliquely outward following the bed of the gall bladder. The cutaneous scar which is not unsightly is well hidden in the folds of the skin. The cicatrix of the fibromuscular layers is always very solid. The author has never seen evisceration even in cases with drainage or those in which weakness of the wall was caused by the resection of nerves. When the diagnosis is doubtful and when there is more than one lesion the transverse incision open at the hepato-gastric quadrant is a direct and broad route which may be extended to bring into view the liver biliary ducts duodenum pylorus stomach pancreas spleen and appendix. 142

Alvarez W C Mesenteric Lymphadenitis in Adults a Cause of Pseudo Appendicitis Indigestion Diarrhea and Arthritis *M d Clin*  
*V. 11. 1913* xiv 623

Every physician sees from day to day patients with abdominal pain and symptoms of indigestion so severe that he has little doubt of the presence of definite organic disease. The symptoms may suggest cholecystitis peptic ulcer or appendicitis but often the syndrome is atypical roentgenograms fail to show disease and a satisfactory diagnosis cannot be



made. Sometimes in the cases of children almost every symptom and sign points to the presence of acute appendicitis yet when the abdomen is opened the surgeon find no evidence of disease.

There are reasons for believing that the intestinal mucosa is more permeable in childhood than in adult life. For many years mesenteric lymph adenitis has been well known to pediatricians who generally speak of it as *tabes mesenterica* or *tabes mesaraica*. A number of recent articles dealing with the syndrome as it appears in adults have led Alvarez to report eight cases coming under his own observation.

That mesenteric lymphadenitis can result fatally was shown by the case of a woman seen by Alvarez years ago. In this case the main symptom was uncontrollable diarrhoea. At autopsy the only abnormality found was remarkable hypertrophy of all the lymph nodes of the mesentery.

The suggestion has been made that the disease might be a mild form of Hodgkin's disease. Alvarez thinks that it is not. He believes its most common cause is juvenile tuberculosis. It has been suggested also that in some cases the infecting organism might be *brucella abortus*. Alvarez thinks that many of the strange disorders of digestion can be explained best on the basis of such a low grade infection and that one of the greatest needs of medicine is a means of raising the resistance of the body to such infections. He believes that better results would be achieved if the patients were treated exactly as if the infection was tuberculous. Unfortunately this can rarely be done because perhaps prolonged rest, overfeeding and heliotherapy may not effect a cure. In a number of the cases described by Alvarez the patient recovered only after long continued treatment of the type used in sanatoria for tuberculosis.

## GASTRO INTESTINAL TRACT

Semb G. Aute Free Perforation of Gastric and Duodenal Ulcers. *Acta Chirurgica Scandinavica* 1930 141: 35

The author's material consists of 166 cases of perforating gastric and duodenal ulcer operated upon in the surgical departments of the Uleål Hospital, Oslo, in the period between 1912 and 1929.

Investigations regarding the frequency and localization of the ulcers and their distribution with respect to age and sex show that of late years there has been a considerable increase both absolute and relative in the number of peptic ulcers in young men.

The perforating ulcers—especially the juxta pyloric—differ in many ways (apart from the perforation itself) from ordinary chronic ulcers and to a certain extent must be regarded as a special form.

In cases of perforating ulcer a marked increase in pancreatic diastase in the urine is sometimes found. The treatment adopted in by far the greater number of cases was suture with gastro-enterostomy

and flushing out of the abdomen through a cross incision in the right iliac fossa. Especially in cases of juxta pyloric ulcers this treatment yielded excellent results.

Primary gastro-enterotomy is well tolerated. It does not seem to be associated with any great danger of spreading the infection and it affords excellent drainage of the stomach.

Follow up records show that gastro-enterostomy yields a larger percentage of cures in cases of perforating ulcer than in cases of chronic ulcer.

Miller T G, Ellason E L and Wright V W M. Carcinomatous Degeneration of a Polyp of the Stomach. A Report of Eight Personal Cases, with a Review of Twenty Four Recorded by Others. *Arch Int Med* 1930 31: 841

In a series of 200 operations for cancer of the stomach the authors encountered 18 cases of carcinomatous gastric polyp. In 4 cases the polyps were multiple. Previous studies of gastric polyps made by the authors indicated that the incidence of carcinoma as change in these neoplasms is 35 per cent.

A finding common to all of the 8 cases of carcinomatous polyp was achlorhydria. The signs and symptoms included epigastric discomfort or pain, loss of weight, anorexia, vomiting with sometimes the appearance of blood in the vomitus, nausea, pallor, the passage of blood by bowel, diarrhoea and diarrhea. A diagnosis of polyp was made by the roentgenologists in 2 cases and was given as an alternate diagnosis with gastric carcinoma in 3 cases. Three of the patients remained well a year, a year and a half and five years respectively after operation.

The authors conclude that carcinoma of the stomach may arise on the basis of a benign polyp. When this occurs the symptoms are those of any malignant gastric lesion with the addition of intermittent pyloric obstruction and hæmorrhage.

C D HAAGE, SEN MD

Boas I. The Dietetic Treatment of Patients with Inoperable Cancer of the Stomach. *Clinical Medicine* 1930 1: 193

Seventy per cent of all patients with gastric carcinoma are inoperable at the time they are referred for surgical treatment. Therefore it is necessary to regulate their diet not so much for the prolongation of life as for the control of pain and other symptoms. With proper diet the symptoms may be materially alleviated. As chronic chemical or physical irritants favor the growth of neoplasms the ingestion of such irritants should be carefully avoided. Irritating drugs should be given rectally or parenterally. It is very probable that the avoidance of all mechanical or chemically irritating food stuffs and other irritants such as alcohol and nicotine will combat the tendency toward ulceration.

In contrast to Van Noorden and Salomon who believe that the patient may eat whatever he desires

provided it produces no discomfort the author advocates a diet of liquids and gruels as he believes this will best relieve the symptoms.

Boas considers a liquid diet ideal for patients with cancer of the stomach. It need not be poor in calories nor monotonous. It should contain adequate vitamins. The desire for solid food may be satisfied by the administration of all types of jellies—meat, fish, milk, almond milk and fruit jellies and aspics. The diet of all patients with carcinoma should begin with this type of food. Soon the pressure distress, vomiting and pain cease and the appetite improves. Later gruels may be added but meats should be excluded as they often cause aversion and nausea and thereby jeopardize the assimilation of other foodstuffs. Fish preparations may be permitted for variety. In some cases the chewing of meat may be allowed. To this standard diet many substances may be added.

All sharp foods should be forbidden, such as beverages with a high alcoholic content (cognac, liqueurs, sherry, port, wine, champagne), spicy sauces, mustard, horseradish, onion, garlic, paprika and salt herring. On the other hand, lemon, apple, plum, pineapple and melon juices, compotes, caudle and milk with the addition of vanilla or Brunswick mum are to be recommended. Yogurt, milk and other forms of sour milk, provided they are not effervescent (they are best when two or three days old) may also be allowed.

Patients with carcinoma require very much less narcotic if given food containing no spices. A liquid and semi liquid diet need not become monotonous as the number of possible variations is very great.

ERICH HEMPEL (Z)

**Kaufmann H.** Acute Intestinal Occlusion in the Course of Salpingitis. (*De l'occlusion intestinale aigue au cours des salpingites*). *Gynecologie* 1930, 11: 603.

Kaufmann reports a case in which a perisalpingeal peritonitis agglutinated the intestine, creating an inflammatory block which threatened life. While the lesion was essentially inflammatory, its effect was mechanical. In such cases the adnexitis must be overlooked and the ileus treated by enterostomy or entero anastomosis.

Three types of intestinal occlusion may result from salpingitis: the paralytic ileus of pelviperitonitis, the chronic ileus of pericolic stenoses, and subacute occlusion of which the author's case was an example.

Salpingitis may result in the formation of peritoneal bands, inflammatory adhesions and perivisceral sclerosis. The mechanism of the occlusion is less important than the infectious nature of the agent causing it.

It is not always the most chronic salpingeal lesions that cause the most dramatic intestinal occlusions. In two instances cited, the infection was practically silent and of short duration, whereas in others there were very old pelvic inflammations and sclerosis due

to a process developing for years. Adneval inflammations seem to play a role also in the development of the ileus of pregnancy.

Increased peristalsis is the sign of ileus which demands intervention. The problem of diagnosis is to eliminate pelviperitonitis and prove the presence of occlusion. The significance of distention of the abdomen, increased peristalsis, repeated vomiting and absolute stoppage of gas must be properly interpreted. Occlusive intoxication also causes general signs which are easily recognizable. In the case of a pregnant woman, apyretic and mild mechanical ileus must be distinguished from the formidable septic ileus of pregnancy in which operation is performed with great difficulty and the results are disappointing.

Surgery is indicated only when there is definite intestinal occlusion and at operation only the occlusion should be treated. The more threatening the salpingitis, the less should be attempted with regard to it. Even palpation should be avoided. In a serious case treated by Schwarz, simple laparotomy was successful. Ablation of the adnexa and hysterectomy are very difficult and dangerous. The operative procedures performed for ileus are enterostomy, entero anastomosis and the formation of an iliac anus.

Kaufmann has collected from the literature the reports of nine cases of intestinal occlusion due to salpingitis in which there were six deaths and three recoveries.

In conclusion, the author says that intubation of the organism in intestinal occlusion should be combined by the intravenous injection of hypertonic salt solution.

PAGE

**Burget G. E., Martzloff K., Suckow G. and Thornton C. B.** The Closed Intestinal Loop. I. The Relation of Intraloop (Jejunum) Pressure to the Clinical Condition of the Animal. *Arch. Surg.* 1930, 11: 820.

The authors report experiments on dogs in which they used the closed intestinal loop method of Whipple to determine the relation of hydraulic pressure within infected hollow viscera to the clinical course presented. The technique is shown in illustrations.

It was found that when the intestinal loop became distended the animals became less lively and lost their appetite. If the pressure was relieved by tapping, they became able to eat at once or within the next hour. Hydrostatic pressure developed in practically all jejunal loops. Relief of this pressure permitted normal recovery, provided the circulation was not impaired. Little or no vomiting occurred unless the loop was distended. The decrease in the blood chlorides which is typical of clinical obstruction was not observed. The predominant bacteria found in the jejunal loops were the bacillus coli, the bacillus welchii, enterococci and streptococci. The bacillus coli seemed to disappear from the older loops.

M. HERBERT BARKER, M.D.

Schnitzler H The Clinical Picture and Pathogenesis of Intestinal Tuberculosis and Its Complications (Zu Klinik u. Pathogen. der Darmtuberkulose und ihrer Komplikationen) 1 f f k l n C l 930 cl 463

A woman twenty four years of age had suffered for years with attacks of intestinal colic. Nine months before she was seen by the author a roentgen examination of the intestinal tract disclosed a narrowing and li tortion of the lumen of the cecum. Five hours before admittance to the hospital the patient experienced a sudden attack of pain in the region of the cecum. Her temperature rose to 38 degree C and her condition became one of extreme prostration. Operation was performed under the diagnosis of generalized peritonitis. When the abdomen was opened fluid pus escaped the entire peritoneum was found to be dotted with milary tubercles and a tiny perforation was discovered in a dilated loop of the small intestine proximal to a narrow section. The perforation was sutured and covered with omentum. Since appendicitis could not be excluded the appendix was removed. Recovery followed.

On the basis of this case the author discusses the etiology, clinical picture and therapy of intestinal tuberculosis. Sometimes the condition is primary in the intestines but more often it is associated with tuberculosis elsewhere in the body. In the stomach tuberculosis is rare but in the intestines it is the most common infectious disease and the healing of the tuberculous ulcers frequently leads to stenosis. Perforation is usually not occurs as a rule in persons who have no general condition. A diagnosis of intestinal tuberculosis is seldom made. The results of operative treatment will only improve when operation is performed at the proper time. In the diagnosis of intestinal tuberculosis the possibility of presence of intestinal tuberculosis must be kept in mind even when tuberculous foci cannot be demonstrated in other parts of the body. The treatment of choice is resection. S. LITZ (7)

Garvin J D Hypertrophic Tuberculosis of the Duodenum and Terminal Ileum. Report of a Case. J. I. M. I. 13 48

Hyperplastic tubercles of the terminal ileum without involvement of the cecum is extremely rare. Involvement of the duodenum by the process has not been reported heretofore.

The case reported by the author was that of a man twenty five years of age with complaint of diarrhea which began in February 1925. At that time from six to ten bowel movements occurred daily. The stools contained no blood and there was little griping. After several weeks the diarrhea ceased and the patient gained weight. A year later it recurred for about two or three days every month. The temperature occasionally rose to 100 degrees F and there was an occasional leukocytosis as high as 14,000.

When the patient was first seen by the author his weight had decreased from 154 to 127 lb. Physical

examination revealed generalized abdominal tenderness and a right inguinal hernia. Fluoroscopic examination showed a persistent duodenal deformity which was attributed to duodenal ulcer. Chest examinations were negative. Roentgenograms of the colon made four times over a period of two years and repeated proctoscopic examinations, Wassermann tests and examinations of the sputum were negative but the patient continued to complain of dyspeptic symptoms, sour gas, belching, soreness in the stomach and diarrhea.

In August 1929 he appeared definitely emaciated and complained of being bloated. He then weighed only 123 lb. On roentgen examination the colon again appeared negative but the terminal ileum failed to show normal emptying phenomena. The ileum held the barium evenly and felt to the palpating hand like a rope. Its lumen was markedly narrowed. A diagnosis of hyperplastic tubercles of the terminal ileum was made.

At operation performed October 7, 1929 the terminal ileum was found to be markedly thickened for a distance of about 15 cm from the ileocecal valve and studded with many tubercles. The cecum was normal to palpation. The duodenum was markedly thickened and studded with tubercles similar to those in the distal ileum. The pylorus was almost completely obstructed. No glands were palpable anywhere in the abdomen.

On account of the patient's poor condition only a simple gastroenterostomy was done. Convalescence was uneventful. By January 3, 1930 the patient's weight was 147 lb but in February the sensation of weight and distress in the stomach associated with diarrhea and a progressive loss of weight recurred. By May 9 the weight had fallen to 134 lb. A definite elongated tumor was then palpable in the right lower quadrant. To date the patient has refused to allow resection of the affected segment of bowel.

There are three main types of intestinal tuberculosis: (1) the ulcerating type which is practically always secondary to pulmonary tuberculosis and (2) the hypertrophic type which was first described by H. Mann and Pilliet in 1891 and is evidence of the successful reaction of the body against organisms which are either few in number or attenuated in virulence. The latter has been described as the real surgical tuberculosis. The infection probably occurs through the blood and lymph stream. The lesion is formative rather than destructive. The most frequent site of the disease is the ileocecal valve. The walls of the affected segment of bowel are markedly thickened, white or grayish white and occasionally studded with yellowish tubercles. Ulcers are usually present somewhere in the mucosa. Occasional temperature reactions and leukocytosis are probably accounted for by absorption through the mucosal ulcers. The disease is of long duration and associated with somewhat indefinite symptoms. The most common early symptoms are dyspepsia, nausea and occasional vomiting. Abdominal pain is often present. Diarrhea and constipation frequently alternate.

W J Mayo has reported several cases of ileo cæcal tuberculosis in which anastomosis performed as a preliminary to bowel resection was followed by complete relief the necessity for later resection of the affected segment of intestine being therefore obviated

JOHN W NUZUM M D

Waters C A The Roentgenological Diagnosis of Papilloma of the Duodenum *Am J Roentgenol* 1930 VII 554

In a review of the literature on benign tumors of the duodenum the author was able to find only three cases in which the neoplasm was diagnosed roentgenologically. Papilloma of the duodenum is a very rare condition. Waters reports a case in which the pre operative diagnosis was made both roentgenologically and clinically and was confirmed by operative findings and microscopic examination. The roentgen finding on which the diagnosis was based was a multilocular filling defect within the lumen of the duodenal cap. The marginal contours of the cap seemed to be entirely normal.

ADOLPH HARTUNG M D

Murard J Intraoperative Closure of the Artificial Anus in the Large Intestine (*De la fermeture intrapéritoneale des anus contre nature du gros intestin*) *Bull et mém Soc nat de chir* 1930 LV 103

The intraoperative method of closing the colic anus deals with healthy tissues brings together serous surfaces allows another view of the focus of the first operation replaces the freed intestine in the peritoneal cavity without adhesions and permits exact reconstruction of the abdominal wall. The colon is left adherent to the wall but is probably liberated spontaneously later by the contractions of the abdominal wall or the intestinal mobility. There are usually protective adhesions around the focus and the operation while remaining intra peritoneal takes place in relatively circumscribed area of the peritoneal cavity. Duval says that closure of an artificial anus should be delayed until the tissues in the fistula are clean and the wall of the colon normally supple. The average delay is three months.

Intraoperative enterorrhaphy permits a more extensive and more careful dissection of the muscles of the wall which allows methodical repair of all of the layers of the wall and at the same time correction of the small evenerations which are often associated with colic fistula. In the 7 cases reported by Murard there were cæcal fistulae consecutive to an emergency appendectomy. Three times the enterorrhaphy was done on the cecum which had been fistulized at the wall on account of paralytic occlusion. In 1 case radical cure was undertaken on a fistula of the splenic flexure which was consecutive to the resection of a tumor after exteriorization. In 1 instance a cæcal anus made for an old occlusion was closed and a left iliac anus was made when laparotomy after the formation of the cæcal anus

showed the presence of an inoperable sigmoid cancer. All of the 7 patients recovered. In 6 cases healing occurred by primary intention. In 1 case the wall opened but the intestinal suture held and the wall healed by secondary intention.

All of the cicatricial portions of the intestinal wall should be resected. To the 3 layers of suture—mucous muscular and serous—Murard strives to add a fourth the serous. He then sutures the abdominal wall layer by layer with the exception of the skin and subcutaneous cellular tissue which he brings together loosely with 1 or 2 stitches.

BASSET who read this report to the Society stated that in a review of the literature he had found 158 cases in which intraoperative closure of a colonic fistula was done—58 cases reported by Duval, Goetz and Murard 48 by Delore and Devaux 4 by Hohlbaum and 10 by Kappis. In this number there was 1 death. Of 10 cases of spontaneous fistula following operation for acute appendicitis intra peritoneal suture was completely successful in all. However this method is not to be considered as applicable to spontaneous fistula as to surgical fistula and anus. In cases of spontaneous fistula it is more prudent to do a derivation operation at a distance from the anus by exclusion or simple anastomosis and later excise the anus and the excluded intestine and reconstruct the wall. IACE.

Ratcliff R A Submucous Lipoma of the Colon *Glys Hosp Rep Lond* 1930 LVX 453

Ratcliff reports two cases of submucous lipoma of the ascending colon. Both were characterized by attacks of severe pain, negative X ray findings, considerable flatulence and vomiting. In one case the condition caused a loss of weight and diarrhoea. Mucus was passed but the stools were free from visible blood and no mass was palpable. In the other case there was a mild constipation. Chemical examination of the stools revealed fairly fresh blood but no excess mucus, a soft indefinitely outlined mass was palpable and at operation the mucosa covering the tumor was found to be ulcerated. Both of the patients recovered after removal of the tumor.

When these cases are compared with others reported in the literature it seems fairly certain that the pain is due to spasm of the muscle coats. The attacks of pain may be caused by invagination. The history is longer than in cases of carcinoma. The occurrence of vomiting is not constant but is probably quite frequent. Either constipation or diarrhoea or both may be present. Loss of weight and flatulence are occasional sequelae. It is very likely that chemical examination of the stools would show the presence of blood in a high proportion of the cases. Tumors the size of a small orange are usually palpable but even these can rarely be felt very definitely. As a rule X ray examination shows the presence of obstruction but is negative as to the position and shape of the obstacle.

While submucous lipomata of the colon seem to be rare it is probable that a large proportion of them

never cause clinical manifestations. Tumors in the ileum are apt to be more acute than those in the colon. Those of the rectum are more characteristic and may be distinguished by proctoscopic examination. The differential diagnosis is difficult when only the chronic symptoms are considered. These tumors are confused with carcinoma of the colon, chronic appendicitis, hyperplastic tuberculosis of the caecum and other benign tumors of the ileum and colon. The most important complication is intussusception but occasionally anemia may result. The tumors are so obviously benign that local excision is sufficient. In a few cases on record a cure resulted from spontaneous expulsion of the neoplasm.

I. LIZABETH CRANSTON

Santos R. P. Technical Details in Operations for Anorectal Fistulae (Quelques points de technique des fistules anales). *Rev. S. d. m. d. et d. ch.* 1930 i 334

The treatment for an ordinary anorectal fistula of inflammatory origin is excision of the course of the fistula without suture. In general failure of the operation is due to (1) the existence of diverticula and ramifications of the fistula which have been overlooked, (2) the lack of good drainage of the operative wound or (3) improper postoperative dressings.

The operation is best performed under spinal or epidural anesthesia as this gives complete relaxation of the perineal musculature and facilitates the discovery of ramifications of the fistulous tract. The position of the patient should be that taken for lithotomy. The operative wound should be of a type which is easily drained and drainage should be continued until complete cicatrization has occurred.

Roentgenography after the injection of bismuth may show the presence of ramifications of the fistulous tract but in order that such ramifications may be visible during the operation a coloring solution must be used to impregnate the fibrous tissue of the tract. The author makes injections of 3 per cent methylene blue into the external orifice of the fistula. Nearly always the exit into the rectum is found and repaired easily. The surface should be examined for other openings. The methylene blue solution disinfects the fistulous tract and diminishes the sepsis of the wound.

For perfect drainage the operative wound should be dependent, regular and extensive. A large number of anorectal fistulae are extrasphincteric. Generally abscesses originate in the submucous cellular tissue by direct infection of the rectal mucosa and the pus descends into the perineal cellular tissue. When the fistula traverses the sphincter the latter must be resected not to place it at rest but to establish good drainage. It must be cut perpendicularly to its fibers. The wound should be easy to drain and its healing should be watched with the greatest care. The best place for resection is the posterior angle where the muscle is voluminous. If all precautions are taken both sphincters may be cut without fear of causing incontinence.

The internal orifice is single whatever the number of external orifices and its position is below Morgagni's valves. Only tuberculous or complicated fistulae such as those of the rectovesical type have a high internal orifice. It is essential to know where the fistulous tract lies between the internal and external orifices. Nine times out of 10 the internal orifice is in the posterior half of the rectum. When it is in the anterior half of the perianal region the tract between the 2 orifices is generally direct. When it is in the posterior half the tract is nearly always angular. The cannulated sound must never be passed with force through the mucosa for when this is done a part of the tract is left unopened and the fistula recurs or the sphincter is cut twice.

Diagonal resection of the sphincter is the result of an error in technique. If there are 2 subspinal fistulae it is better to do the operation in 2 stages. When the tracts have been opened the cutaneous and mucous edges should be equalized so as to broaden the wound, prevent sinuosity in the mucous part and juxtaposition in the cutaneous part. The less acute the angle formed by the edges of the wound the easier the dressings and the more perfect the cicatrization. No matter how large the operative wound it must never be sutured.

Drainage must be kept up during the entire period of cicatrization. Dressing should be done every day; otherwise a bridge of tissue forms or the mucous part of the wound is isolated and ceases to drain.

On the day of the operation the gauze should be put in place under pressure to prevent bleeding. A separate wick of gauze should be placed in each ramification. The gauze may be held in place by bands of sparadrap and a T bandage. After the first dressing it is absolutely necessary that the wound be dressed daily. After the third day the patient may go to toilet each morning before the dressing. Because of the spinal anesthesia he should not attempt to walk until the third or fourth day. The average time for healing is from three to four weeks. Increase of the secretion at any time means that the wound is not draining well.

In 105 cases operated upon before the adoption of this technique there were 9 failures, nearly all of which were due to the persistence of a diverticulum.

F. C.

D. Anhelise F. Radical Operation for Cancer of the Rectum (Zur Radikalen Operation des Mastdarmkrebses). *B. f. k. Ch.* 93, 21, 5

The author reviews 168 cases of carcinoma of the rectum which were treated at the Nuremberg Hospital in a period of six and a half years. A yearly average of 26 cases. Lightly seven (51.8 per cent) were inoperable. The cases are classified according to the age and sex of the patient, the duration of the disease and the local and histological character of the tumor. The duration of life in the inoperable cases varied from half a month to several years.

In the choice of operation the first consideration should be the possibility of preserving the sphincter.

and maintaining continence. In the 81 operable cases reviewed amputation of the rectum with the formation of a sacral anus was done 27 times, sacral resection 37 times, abdominosacral resection 11 times, and Hochenegg's pulling through procedure 6 times. The Kirschner abdominosacral extirpation of the rectum with the formation of an abdominal anus was not done.

Of the 81 surgically treated patients 24 died. Five of the deaths were considered late fatalities and 19 were included in the calculation of the primary operative mortality. In the cases treated by amputation of the rectum there were 7 early and 3 late deaths, the operative mortality being therefore 5.9 per cent and the total mortality 37 per cent. In those treated by sacral resection the operative mortality was 18.9 per cent (7 deaths) and the total mortality (including 1 late death) 21.6 per cent. In the cases treated by abdominosacral resection there were 5 early deaths and 1 late death, the operative mortality being therefore 45.5 per cent and the total mortality 54.5 per cent. In the cases treated by the Hochenegg procedure there were no deaths. The total operative mortality was 23.5 and the total mortality 29.6 per cent.

Of the patients who survived amputation of the rectum for three years 40 per cent were free from recurrence and of those who survived this operation for five years 50 per cent were free from recurrence. Of those who survived sacral resection for three years 38.8 per cent were free from recurrence and of those who survived for five years 44.4 per cent were free from recurrence. Of those who survived abdominosacral resection for three years 50 per cent remained free from recurrence at the end of that time and of those subjected to the Hochenegg procedure 1 remained free from recurrence for three years and 1 for five years.

A comparison of the results of sacral resection with the average results obtained by Heller with the combined method favors the sacral resection. Not only was the operative mortality of sacral resection (19 per cent) lower than that of the combined method (28.8 per cent) but the incidence of cure after the sacral resection was higher (39 per cent) than the incidence of cure after the combined method. Moreover of the cases treated by sacral resection complete continence was obtained in 77 per cent and a permanent fistula remained in only 10 per cent. The author sees no reason for giving up sacral resection in favor of the Kirschner procedure.

BUETTNER (Z)

Lahey, F. H. Two Stage Abdominoperineal Removal of Cancer of the Rectum. *Surg. Gynec. & Obst.* 1931, 1: 692.

Lahey describes a modification of the operative technique for two stage abdominoperineal removal of the rectum which he has employed in seven cases and believes is an improvement over other procedures.

A median incision is made between the pubes and the umbilicus and the field is investigated for

metastases and to determine the operability of the growth. If the growth is operable the sigmoid is pulled out upon the abdominal wall and the lowest point above the growth which will reach above the skin level at the lower pubic end of the incision is noted. The mesenteric peritoneum on either side of the mesentery from the sigmoid down to the promontory of the sacrum is cut and all of the mesenteric vessels from the sigmoid down to but not including the superior hemorrhoidal vessels are cut and ligated.

A small counter incision is then made on the left side and the bowel grasped at the level of section with an Ochsner clamp. Within the abdomen another Ochsner clamp is placed transversely across the sigmoid parallel with the first hemostat and the bowel is severed with the cautery. The bowel and its mesentery are thus severed down to the promontory of the sacrum while the superior hemorrhoidal vessels are left intact to nourish the lower segment of the rectum. Raw surfaces are peritonized and the proximal end of the severed sigmoid is drawn through the colostomy opening and fixed in place with a few sutures, the clamp being left in the dressings. No stitches are placed in the colon itself. A considerable loop of redundant sigmoid is preserved beneath the colostomy to act as a fecal reservoir. The lower loop of bowel with the Ochsner clamp in place is sutured in the lower end of the pubic incision and the abdominal wound is closed with the usual layer closure. The clamp generally sloughs off in about seven days. The upper clamp on the colostomy opening may be opened at any suitable time.

As soon as the clamp is off of the lower segment irrigations are made several times daily with a speculum in the anus, the solution being introduced through the upper end of the distal sigmoid which was brought out through the lower end of the abdominal incision above the pubes. Thus all fecal material is washed down and out through the rectum.

As a rule the patient is in good condition for the second stage of the operation at the end of two weeks. If not further delay of the second stage is permissible as the circulation of the lower end of the rectum is maintained through the intact superior hemorrhoidal vessels.

In the second stage of the operation the colostomy wound is sealed up and the lower segment of bowel which was implanted in the abdominal wound is dissected free and its end is sutured shut. The stump is painted with iodine. Then the surgeon having put on a clean gown and clean gloves the abdomen is re opened through the original incision with clean instruments. The superior hemorrhoidal vessels at the promontory of the sacrum are ligated and severed and the peritoneum on either side of the rectum and in front of it is incised. The ureters are identified and dissected out. The rectum is next freed from the hollow of the sacrum to the tip of the coccyx, the free bowel is pushed down into the

pelvis and the diaphragm of the pelvic peritoneum restored above the rectum. The patient is then turned on his side and after the anus has been sutured shut the removal of the rectum is accomplished in the usual manner with or without the removal of the coccyx. It seems best in the particular case a rubber dam cigarette drain or gauze pack may be inserted into the pelvic cavity.

In conclusion Lahey says that while this procedure is not without undesirable features it appears to him to approach more nearly the ideal one stage abdominopelvic removal of cancer of the rectum than other two stage methods. The second stage of the operation may be delayed as long as desired because the blood supply to the distal bowel remains intact and fecal material is readily removed from this segment by daily irrigations. The necessity of implanting dead bowel in the pelvis is overcome and the second stage involves the removal of a relatively clean rectum. Good posterior drainage is established immediately after the extensive pelvic dissection. *John W. Sizler, M.D.*

#### LIVER GALL BLADDER PANCREAS AND SPLEEN

Irliden, J. and Morris, N. T. H. A Clinical Study of Gumma of the Liver. *J. M. S.* 93, 1, 1936

The author studied ten cases of gumma of the liver in which the diagnosis was based on the physical finding and the response to anti-syphilis treatment. This condition is diagnosed in about 2000 cases admitted to the clinic but in some instances may be unrecognized as the diagnosis is often quite difficult.

It may be congenital or acquired. Pathological examination may reveal large gumma or many small gummata diffuse or focal periphepatitis or any combination of these lesions. The diagnosis is based on (1) the symptoms of a tumor of the liver (pain in the right upper quadrant of the abdomen which may radiate to the shoulder) indigestion loss of weight slight jaundice and dilatation of the abdominal veins in a person between thirty and fifty years of age with perhaps a history of luetic infection (2) enlargement of the liver and spleen (3) a palpable tumor or scar on the liver and (4) a positive Wassermann reaction.

Usually treatment with mercury and iodides followed by marked improvement in about six weeks. Previous afflictions of the liver render it more susceptible to this condition.

*Maxwell Dal, M.D.*

Ivy, A. C., Dreys, G. E. and Orndoff, B. H. The Effect of Cholecystokinins on the Human Gall Bladder. *I. J.* 93, 343

The authors have previously reported the preparation of a specific substance extracted from the mucosa of the upper part of the intestinal tract which upon intravenous injection caused the gall

bladders of dogs and cats to contract and evacuate. They verified the specificity of the extract by cross circulation experiments and concluded that a hormone mechanism was involved. The substance is called the substance cholecystokinins.

In this article they describe a method of preparing a cholecystokinins concentrate which in the dog is active in doses of from 3 to 1 mgm. Following the intravenous injection of cholecystokinins the response of the gall bladders of different dogs varies considerably. The variation probably depends upon the depth of the anesthetic and the degree of the disturbance of the blood supply of the gall bladder.

Since a relatively purified extract had been secured for animal experimentation the injectons of cholecystokinins were tried on man. The gall bladder was visualized with tetraiodophenolphthalein. From 25 to 30 mgm. of the extract in aqueous solution were injected at ten minute intervals for one hour into five normal subjects and for half an hour into three patients. Roentgenograms were then made at intervals of from ten to thirty minutes.

In one normal subject the results were indefinite. In the four others some degree of gall bladder evacuation with a change in the contour of the organ was noted. In one the evacuation was complete and in three it was partial. Two of the five normal subjects felt slight headache for from thirty to sixty minutes. In the normal subjects very definite contraction or change of the contour of the gall bladder was detectable ten minutes after the first injection.

Of the three patients two showed a definite decrease in the size of the gall bladder after the administration of the cholecystokinins. One of these had pericholecystitis and about one and a half minutes after the second administration he developed pruritus and wheals appeared at the sites of scratching. One patient showed no emptying of the gall bladder and developed a chill thirty minutes after the third injection. These reactions were probably due to impurity of the extract used.

The authors believe that there is little therapeutic value in cholecystokinins. When the substance is given intravenously it produces the same effect as egg yolk and cream given orally and as might be expected produces more quickly.

*Samuel H. Metz, M.D.*

King, E. S. J. Epithelial Proliferation and Metaplasia in Cholelith Cholecystitis. *J. C. I.* 93, 1, 1, 93, 45

In the gall bladder epithelial proliferation and metaplasia occur readily in response to even minor degrees of chronic irritation. In a series of 50 gall bladders the author found the following proliferative epithelial changes:

1. Epithelial dysplasia. Gland of Luschka lined by columnar epithelium with relatively large lumina and extending into the muscular coat and sometimes through the peritoneal coat were present in 64 per cent of the gall bladders examined.

Goblet cells Goblet cells were found in 80 per cent of the specimens. They are relatively uncommon in the normal specimen. In the gall bladder all of the epithelial cells produce mucin though the globules do not coalesce therefore the cells appear vesicular when large quantities of mucin are produced. Accordingly typical goblet cells are comparatively rare but a few may be found in most cases of chronic cholecystitis.

3 Mucous glands Mucous glands were found in 74 per cent of the cases. They are usually absent in atrophic gall bladders with thick walls.

4 Gastric glands in the form of branching coiled tubular structures. Glands of this type occurred in conjunction with mucous glands in 44 per cent of the cases. They are probably formed as a result of metaplasia from the latter.

5 Cholecystitis cystica This condition was found in 10.4 per cent of the specimens. When the epithelial downgrowths are abundant and deep some of the gland spaces become cystic. Proliferation is sometimes so extensive as macroscopically to suggest carcinoma. It may occur locally or in a diffuse form.

6 Epithelial stratification This may occur in single double or treble layers. Prickle cells and keratin are not found in these cellular strata.

7 Squamous epithelium showing keratinization and prickles This was found in 2 cases. It is uncommon in the gall bladder although squamous carcinoma is not rare.

8 Malignant proliferations Malignant proliferations occurred in 0 per cent of the cases. This unusually high incidence in the gall bladder is probably explained by the severe grade of chronic cholecystitis present. Most of the carcinomata were adenomatous but several showed various types and gradations of malignancy including spheroidal mucoid squamous and mixed cells. All except 1 were associated with gall stone.

STANLEY H. MENTZER, M.D.

Favre J. A Contribution to the Comparative Study of the Immediate and Late Results of Cholecystostomy and Cholecystectomy for Biliary Lithiasis (Contribution à l'étude comparative des résultats immédiats et éloignés de la cholecystostomie et de la cholecystectomie dans la lithase biliaire). *Presse méd.* 1930 xvi 1-82.

The absolute indications for cholecystectomy are (1) non function of the gall bladder due to obstruction or to sclerosis and atrophy of the gall bladder wall (2) gall bladder disease in a patient with a family history of cancer or signs indicating malignant change in the gall bladder (3) gall bladder infection and (4) persistent fistula or recurrence of gall stones after cholecystostomy.

The indications for cholecystostomy which may be considered absolute are (1) cholelithiasis in a patient whose general condition necessitates restriction of operative procedures to the minimum

(2) cholecystitis with cholangitis demanding drainage (3) cholecystitis with biliary obstruction and (4) a gall bladder which is inaccessible because of its depth or the presence of dense adhesions.

The author's statistics on the two operations run almost exactly parallel as regards the immediate mortality and late results.

Favre emphasizes the importance of supplementing surgical intervention with thorough medical treatment.

ALBERT F. DE GROOT, M.D.

Eisner E. The Practical Importance of Suture of the Common Bile Duct (Die praktische Bedeutung der Choleddusnaht). *Gyógysz. i.* 1930 i 494.

Of more than 100 choledochotomies 29 were sutured 11 in the past half year. Of the 29 patients whose bile duct was sutured only 1 died. The bile duct was opened through the cystic duct 4 times transversely 6 times and longitudinally 10 times. It contained 1 or several stones in 26 cases. The transverse section was employed only when the bile duct was narrow its purpose being to prevent stricture.

Suture of the bile duct is contra indicated in the presence of icterus cholangitis and enlargement or sclerosis of the head of the pancreas. After the suture a gauze drain should be inserted. Seepage of the bile through the incision and the sutures cannot be prevented with certainty (Bakes observed it 230 times in 346 cases). In this regard improvement of the technique may give greater security.

Richter and Zimmerman have reported 29 cases of choledochotomy in which the abdominal cavity was closed completely after suture of the bile duct.

Pólya (Z).

Bernhard F. The Value of Blood Sugar and Diastase Determinations in the Diagnosis and Determination of the Operative Indications and the After Treatment in Acute Diseases of the Pancreas (Der Wert von Blutzucker und Diastasebestimmungen fuer die Diagnostik Operationsindikation und Nachbehandlung der akuten Pankreaskrankungen). *Klin. Wochenschr.* 1931 ii 1346.

Four years ago the author suggested that the disturbance in carbohydrate metabolism in acute diseases of the pancreas can be turned to account in diagnosis and recommended the increase in the blood sugar as a valuable aid in the recognition of acute pancreatic diseases. However recent experiences have shown that the blood sugar is not increased in all forms of acute necrosis of the pancreas. For example it was not found augmented in several cases of pancreatic edema which according to Zoepffel is the preliminary stage of pancreatic necrosis. Nevertheless in the cases the disturbance in pancreatic function could be recognized with the sugar tolerance test (50 gm of dextrose) as the blood sugar rose much higher and in general remained high longer than in the case of the normal person. The disadvantage of the method lies in the fact that it is not absolutely specific for diseases of the pancreas.



However the course of the blood sugar curves make possible further conclusions.

Whether and in how far it is allowable to generalize from the observations made cannot be stated with certainty on the basis of the few cases of pancreatic necrosis which have been studied in detail. A decision will be possible only when careful blood sugar studies have been made in a large number of cases. The mortality of surgery of the pancreas being high it is very important to determine whether the forms of acute pancreatic edema can be distinguished from the fully developed pancreatic necrosis by diastase and blood sugar determinations. Taking into account the sources of error and the clinical picture the author comes to the conclusion that an exact diagnosis can be made in a large percentage of cases. Progressive deterioration of pancreatic function may likewise be recognized so that it will be possible to treat light cases conservatively at first.

Bernhard reports two cases, one with postoperative and one with tuberculous parotitis in which the excretion of diastase in the urine is increased. This finding is important as it shows the necessity of ruling out postoperative parotitis when secondary necrosis of the pancreas after an operation is suspected and it is desired to verify the diagnosis on the basis of the diastase content of the urine also. In the diagnosis of recurrence of acute pancreatic necrosis which sometimes develops after an operation and is associated with a return of high diastase values in the urine.

The influence of diastase on carbohydrate metabolism cannot be explained with certainty. Perhaps the process depends upon increased splitting up of glycogen which must be compensated for by the organism. If this is correct it is possible apparently in acute pancreatitis to influence the effect of increased diastase in the blood by insulin. As soon as a considerable disturbance of carbohydrate metabolism from lack of the pancreatic hormone begins there should be no doubt as to the indication for insulin treatment. Insulin may be expected to give good results in stimulating the oxidation of sugar in the cells. The method by which it is administered is perhaps not unimportant. In a case of necrosis of the pancreas cited by the author hyperglycemia is reduced one half by the subcutaneous administration of insulin. In many cases however the intravenous method with continuous drip infusion will prove most suitable. While a decisive opinion as to the value of this treatment is not yet possible the results of numerous investigations indicate that favorable results are to be hoped for from it.

H. V. W. A. N. (C)

Forord A. G. and Benson B. D. Acute Interstitial Pancreatitis in Two Cases of Diabetic Coma. *Ann. Surg.* 1935, 1, 676.

One of the author's patients was a man twenty years of age who had had diabetes for some time. He was not very careful with his diet and had been in

coma twice before. The other was a woman with no previous history of diabetes who suddenly fell into coma in the seventh month of pregnancy. One patient died eight hours and the other twenty-four hours after the onset of the coma in spite of rigorous treatment.

The chief pathological finding in both cases was a marked edema of the pancreas with scattered areas of polymorphonuclear infiltration and interstitial fibrosis. In the center of some of the areas of polymorphonuclear infiltration frank pus was discovered and in the surrounding acinar tissue there was necrosis. In the case of the patient who had had diabetes for some time fatty infiltration of the liver and other organs was found.

The authors suggest that acute pancreatitis may be the cause of the abdominal pain in certain cases of diabetic coma. MAURICE L. DALE, M.D.

Brocq P. and Mignot G. Chronic Pancreatitis (Le pancreas chronique). *Pr. de méd. P. R.* 1933, 1, 5422.

Anatomically chronic pancreatitis is a sclerous pericanalicular peribulbar or pericanalicular alteration of the pancreas.

The incidence of the condition has not been determined. By some the disease is considered rare and by others as rather frequent. It is more common in females than in males. Of the 177 cases on which this report is based 54 per cent were those of females. The patients ranged in age from thirty to sixty years.

According to the predisposing or determining cause 4 types of pancreatitis are recognized: (1) that due to systemic infections or intoxications; (2) that secondary to disease of neighboring organs; (3) that associated with other lesions of the pancreas; and (4) primary pancreatitis associated with icterus.

The acute infections which may cause pancreatitis include typhoid fever, typhus, scarlatina, cholera, dysentery, angina, diphtheria, pneumonia, and grippe. Mumps may cause a latent pancreatitis associated with gastralgia and congestion of the pancreas. The most important chronic infections which may result in pancreatitis are tuberculosis and syphilis. The toxic conditions which may cause the condition include lead, phosphorus, arsenic, mercury, alcohol, and food poisonings.

The most common conditions of neighboring organs leading to pancreatitis are inflammation of the biliary tract, cholelithiasis, and gastro-intestinal lesions such as gastro-duodenitis, perigastritis, periduodenitis, duodenal stasis, chronic intestinal stasis, appendicitis, and duodenal diverticulum.

Other lesions of the pancreas which are most often associated with chronic pancreatitis are cancer and pancreatic lithiasis.

The general symptoms of chronic pancreatitis are dyspepsia, anorexia, flatulence, nausea, regurgitation after meals, epigastric distress, chronic diarrhea, the passage of foetid large stools, marked emaciation, and weakness, glycosuria, pains of vary-

ing localization and severity tumor signs due to compression and hemorrhages in the form of epistaxis hæmatemesis melena hæmaturia and purpura

Chronic pancreatitis may interfere with biliary drainage and gastro duodenal peristalsis and cause irritation of the solar plexus. Pancreatitis with icterus the best known type may occur as an inflammatory reaction simulating biliary lithiasis or may suggest a malignant tumor. Occasionally pancreatitis causes compression of the pylorus or duodenum. There is also a type associated with intense pain which is often confused with the pain of tabetic crises. The pain has been ascribed to compression of the solar plexus inflammation of the peritoneum and congestion during the period of digestion. There are also attenuated forms unrecognized types and intermediate forms of pancreatitis.

Laboratory tests are still incomplete and uncertain. However the diagnosis may be aided by examination of the duodenal secretions obtained with an Euborn tube and tests of the stools urine and blood for amylase.

Examination of the pancreas at operation or autopsy may disclose inflammation of the head in duration of the head simulating a neoplasm in inflammation localized in the body or the tail single or multiple foci of inflammation inflammation involving the entire gland atrophic inflammation pancreatic lipomatosis or a transitional form between acute and chronic inflammation. The biliary passages may or may not be involved. Histological examination may show periductular intralobular or acinous sclerosis associated with degeneration or hyperplasia of the parenchyma.

The authors discuss the difficulties of diagnosis based on the clinical manifestations. In most cases the diagnosis is made at operation. The differentiation between cancer and inflammation of the pancreas is difficult. Biopsy is the only certain procedure.

The most important routes by which the pancreas becomes infected are the biliary passages the lymphatics the pancreatic ducts the duodenum and the blood stream. The hæmorrhagic type of pancreatitis is believed to be due to an aseptic auto digestion of the gland.

In certain types of chronic pancreatitis particularly those on a syphilitic basis medical treatment may be beneficial. In insufficiency of the pancreas opotherapy may be tried in addition to regulation of the diet and attempts at drainage with a duodenal tube. In pancreatitis with icterus surgical methods are indicated. Cholecystectomy should be considered when the gall bladder is affected and may be considered the cause of the pancreatic lesion. However cholecystectomy is the method chosen by most surgeons and results in a cure in about two-thirds of the cases. Drainage of the common bile duct may be done but is a more serious procedure than cholecystectomy. Methods less frequently used are anastomosis of a part of the biliary tract

with the gastro intestinal tract as in cholecysto gastrotomy and cholecystoduodenostomy. Duval inserts a tube from the duodenum through the ampulla of Vater. The indications for each method are based on the resistance of the patient the clinical type of the infection whether the condition is inflammatory or neoplastic and the findings at operation particularly the condition of the pancreas and biliary passages. In any case the condition of the gall bladder is an important factor in the choice of the type of operation. The authors discuss the indications for the various operative procedures. In the types of pancreatitis associated with gastro intestinal lesions the procedures indicated for the latter (gastro enterostomy gastrectomy) are sufficient. The types associated with severe pain are treated by a direct operation on the pancreas such as pancreatolysis pancreatostomy or partial pancreatotomy.

In the discussion of this report JACOBOWICZ (Cluj Roumania) stated that in cases with duodenal ulcer he does a partial resection by the Finsterer method with a Polya anastomosis. In cases with gastric ulcer he performs a resection if separation from the pancreas is readily done. If separation is difficult he performs a gastro enterostomy. For cases with pyloric ulcer he prefers a Finsterer resection. The results of such resections are usually very good.

COLIN (Copenhagen) called attention to pancreatic reactions which occur in association with pelvic inflammation in women.

PAEEL (Lyons) cited 2 cases of chronic pancreatitis with icterus in which he obtained excellent results from cholecystogastrotomy. He finds the technique of this procedure easier than that of cholecystoduodenostomy and believes the objections to the method are more theoretical than real. He cited also a case of a subacute type of pancreatitis with pseudocystic development in which cure resulted from incision and marsupialization.

BERARD and MALLET GUY (Lyons) stated that the type of chronic pancreatitis without biliary retention but with pyloric stenosis is treated better by cholecystostomy than by gastro enterostomy. They believe that biliary infection plays an important part in the development of pancreatitis and that the role of digestive lesions is doubtful. They are of the opinion that syphilis is a more important factor than is generally believed. They regard cholecysto gastrotomy as the operation of choice in the majority of cases.

JACOB T. KLEIN M.D.

Hess J. H. Splenic Puncture as a Diagnostic Procedure in Infancy and Childhood. *Ann Int Med* 1930 iv 467

In the diagnosis of enlargements of the spleen in childhood the author uses the following procedure:

With the patient in the recumbent position and in the cases of young children who are apt to struggle under partial anaesthesia or the influence of a sedative the spleen is held firmly against the



Bailey reports the case of a boy eight years of age who presented the typical picture of intestinal obstruction with purpura. Purpuric spots were found on the buttocks but it was thought that the patient might have a concomitant intussusception. At laparotomy evidence of extravasated blood beneath the serosa was found in about 4 ft. of jejunum. Uneventful recovery followed the administration of calcium lactate.

In the case of a patient aged twenty one years evidence of acute intestinal obstruction was present for forty eight hours and a typical purpuric rash appeared on the extremities. Operation was not performed. The patient made an uneventful recovery but was admitted to the hospital several months later with similar symptoms and a history of attacks of colic and vomiting at weekly intervals. Because of the low platelet count splenectomy was done. The operation was apparently followed by cure.

The author has collected from the literature fifteen cases in which hæmorrhage into the wall of the intestine was found at laparotomy. In several a palpable abdominal tumor was present. At operation the condition looked somewhat like the bloody extravasation seen in mesenteric thrombosis.

Acute intestinal obstruction may occur simultaneously with purpura as in a case seen by Donaldson which the author reports. Donaldson's patient a boy of eleven years had an attack of purpura with acute abdominal symptoms and the passage of blood by rectum. During convalescence he had an attack of acute intestinal obstruction. At laparotomy a tubular constriction of the intestine in long was found about 5 ft. above the ileocecal valve. Lateral anastomosis was followed by recovery. The author agrees with Donaldson that the constriction in this case was a direct result of the extravasation of blood.

Bailey has collected from the literature fourteen cases of purpura complicated by intussusception. Nine were treated by operation. Seven of the nine patients operated upon recovered completely. In four cases it was necessary to resect the intussusception. Three of the patients subjected to such resection recovered.

In conclusion Bailey says that in cases in which a diagnosis of purpura is made and the abdominal symptoms persist it is probably best to perform an exploratory laparotomy because of the possibility of intussusception and also of intestinal obstruction produced by other causes. In all chronic and recurrent cases splenectomy should be considered. The most valuable guide is the platelet count.

ALTON OCHSNER, M.D.

Ogilvie W. H. *Abdominal Orthopedics* Guy's Hosp. Rep. Lond. 1930 ix 483.

In reviewing the physiology of the abdominal wall Ogilvie reminds us that the stresses of the abdominal wall are preponderantly in the transverse direction. Because of this fact he recommends trans-

verse incisions in abdominal surgery. Such incisions separate rather than cut the all important lateral muscles spare their nerve supply and divide the tendon of insertion in the line of its fibers so that function is recovered rapidly. They depend for their security to a very small extent upon the strength of sutures and therefore allow movement from the beginning. They help to preserve the function of the skin. The transverse incisions in common use are:

1. The supra umbilical which gives ideal access to the stomach, transverse colon, bile ducts and pancreas and is used for most gall bladder operations. There is practically no bleeding. The peritoneum and posterior rectus sheath are easily approximated. Healing is rapid. Adhesions if they form lie in the line of the underlying viscera and not across them. The resulting scar is strong and inconspicuous.

2. The lateral abdominal transverse incision which gives an excellent approach to the ascending or descending colon or the kidney.

3. Pfannenstiel's incision which is excellent for any major infra umbilical operation.

4. The curved incision. This is made below the umbilical scar in operations for umbilical hernia.

Ogilvie applies physiological reasoning also to the problem of surgical treatment of gastric and duodenal ulceration. He says duodenal ulcers should be treated medically unless they give rise to cicatricial stenosis or profuse hæmorrhage. Pyloric stenosis is accompanied by gastric delay and hyposecretion therefore posterior gastroenterostomy is sound in theory and satisfactory in practice. Duodenal ulcers giving rise to profuse hæmorrhage are usually posterior ulcers lying on the head of the pancreas and eroding the gastroduodenal artery. Therefore they cannot be excised. Gastroenterostomy offers no security against fresh bleeding moreover as the acidity is often very high and emptying occurs rapidly in these cases the incidence of renewed ulceration after gastroenterostomy is about 20 per cent. Therefore the correct treatment is radical gastrectomy with removal of enough of the stomach to insure reduction of the acidity below the danger level. In cases of large and chronic gastric ulcer gastrojejunostomy is insufficient and with local resection is unsatisfactory. Partial gastrectomy becomes the routine procedure. The best results are obtained by the Polya operation.

In cases of persistence of symptoms in the right side of the abdomen after operation visceropexy in general is considered but especially points of the right colon abnormalities of mesenteric fixation in testinal stasis, cæcal distention and the common pains in the right iliac fossa which are erroneously attributed to chronic appendicitis. Many of these difficulties can be corrected by the patient. Colopexy fails because it does not aid the propulsive power of the colon. Colectomy fails because it removes the ileocecal sphincter. A possible operation is the procedure suggested by Hurst transplantation of the ileocecal sphincter. ELIZABETH CRANSTON

Knoeflach J C Intra Abdominal T r l on of the Omentum and Appendices Epiploicæ (U ber intraabdomin l Torsion des Netzes und der Ap p ndices ppl cae) *D i l e Zt k f Cf* 1930 ccxxv 436

The syndrome of intra abdominal torsion of the omentum and appendices epiploicæ is discussed on the basis of the literature and two cases seen by the author. On account of the great variety of topographic anatomical possibilities it is not surprising that the diagnosis is always difficult. The symptoms may be acute or subacute. The patient is unable to rise or stand without pain. Adhesions are present in practically every case and are probably the chief cause of the torsion. Nearly always the patient comes to operation with a wrong diagnosis. The only treatment to be considered is radical operation. In the acute stage the indications for radical operation are pre-ented by the stormy clinical symptoms and in the recurrent form of the condition they are pr-s nted by the duration of the pain and the

failure of other methods of treatment to give relief  
WERNER BLOCK (Z)

Shapiro P F Metastasis of Thyroid Tissue to Abdominal Organs *Ann S t* 93 1 1031

Shapiro reports a case in which autopsy disclosed nodules of thyroid tissue scattered over the omentum the peritoneal surface of the intestines and the ovaries. The subject had a nodose goiter but the omental nodules had apparently not arisen from a benign metastasizing adenoma.

Ectopic thyroid tissue has the same potentialities as the thyroid tissue in the neck. It may proliferate and it may become carcinomatous. Thyroid tissue has been found in almost every organ of the body but so far as the author is aware the case reported in this article is the first to be recorded in which it was discovered in the omentum and peritoneum. Shapiro believes that the thyroid tissue in the ovary in his case arose from an embryonic thyroid anlage.

M HERBERT BARKER M.D

## GYNECOLOGY

### UTERUS

Parjaktaronic S. Myoma Uteri (Myoma uteri)  
*Med Pregl* 1930 v 172

The author first discusses the treatment of uterine myomata

Palliative treatment consists of measures to control menorrhagia. These include (1) absolute rest and the use of styptics especially preparations of ergot (combined with calcium diuretin if hypertension is present) and the extract of mammary gland recently recommended by Belle and Federoff (2) hot and cold irrigations and tamponade with various gauzes saturated with glycerin or alcohol (3) curettage followed by the injection into the uterus of a 10 per cent tincture of iodine as recommended by Bogdanovic and Ostril and (4) in certain cases general treatment with baths and stimulants.

When palliative treatment fails or is hopeless from the first active treatment directed to the cause is indicated. This includes operation and roentgen and radium irradiation. Actinotherapy is contra indicated in cases of necrotic gangrenous submucous and subserous polypoid myomata myomata associated with suppurative inflammation of the adnexa carcinoma sarcoma or tumors of the ovary very large myomata myomata exerting great pressure on contiguous organs calcified myomata and myomata complicated by pregnancy prolapse of the uterus or hernia. Extensive operation is contra indicated by severe diseases of other organs.

In the clinic to which the author belongs actinotherapy stands in high favor but because of external circumstances the number of cases of myoma treated by irradiation is very small. Of 348 patients treated between 1924 and 1928 only 23 were irradiated with permanently good results. All of the women were more than forty years of age. Sixty one cases were treated symptomatically for hemorrhage with good results. The remaining 264 patients (75.86 per cent) were treated by operation. Operation may be conservative or radical. Conservative operation is suitable for only certain cases. The purpose of this operation is to remove the myoma while preserving all of the functions of the uterus. Statistics show that in cases in which the myoma is the cause of sterility from 12 to 40 per cent of the women become pregnant after its removal. Operation can be performed during pregnancy. After conservative operations recurrence of myoma is frequent. In the cases reviewed by the author its incidence was 1.2 per cent. According to statistics based on other cases it ranges from 2.5 to 12.5 per cent.

In the radical operative treatment of myoma of the uterus supravaginal amputation can be done only if the cervix is free from pathological changes.

The formation of stump exudates and recurrence of the myoma on the stump are rare. The development of carcinoma of the stump is also unusual in the entire literature. Fleischmann could find only 50 cases of carcinomatous change in the stump. Preservation of the ovaries is not necessary as the menopausal disturbances are no greater when the ovaries are removed than when they are preserved. In the clinic to which the author belongs the mortality of radical operation is 6.9 per cent. According to Doederlein it ranges from 6 to 8.5 per cent. The high mortality is due to postoperative complications.

In the author's clinic total extirpation is done in all severe cases such as those of large cervical and intraligamentous myomata and those of uterine myomata associated with tumors of the adnexa carcinoma or sarcoma. The mortality is 11.6 per cent. Ostril gives the mortality as 1.7 per cent. Stoekel as 4 per cent and Bumm as 6.9 per cent. Vaginal total extirpation is of advantage in the cases of elderly and fat women but so far has been done only twice in the clinic to which the author belongs. Of the radical operations supravaginal amputation offers the greatest advantages as it is technically very simple and is safest from the standpoints of sepsis and haemostasis. Moreover it leaves the vagina anatomically and functionally intact.

The incidence of postoperative complications after radical operations cannot be determined with certainty since it varies greatly and depends on many factors. In the 264 surgically treated cases reviewed by the author laparotomy was performed 170 times with total extirpation in 17 cases supravaginal amputation in 147 and enucleation in 6. In the 94 vaginal operations total extirpation was done only twice. In 14 cases the myoma was complicated by suppurative tumors of the adnexa in 6 cases by ovarian or parovarian cysts and in 2 cases by carcinoma of the body of the uterus. In 1 case one of the horns of a bicornate uterus was myomatous and the other horn contained a pregnancy in the sixth month. In addition the patient had a completely intact hymen which hardly admitted the index finger. In a case of submucous myoma the uterus was ruptured by vaginal twisting off of the tumor supravaginal amputation therefore becoming necessary. In 1 case the bladder and rectum were injured. Of the 264 women operated upon 12 (4.5 per cent) died. Two of those who died were subjected to total abdominal extirpation and 10 to supravaginal amputation. In the 22 cases in which drainage was established there were 3 deaths from peritonitis. Causes of death in the other cases were peritonitis and pneumonia in 2 cases each and ileus embolism shock the anesthetic and a lesion of the bladder and rectum in 1 case each.

Mylomata as such very seldom injure the health. Nevertheless the prognosis is uncertain because of the many secondary complications which may develop and cannot be foreseen. VIDAKOVIC (G)

Wack H C and Catherwood A E. The Aschheim Zondek Reaction in Hydatidiform Mole and Malignant Chorionepithelioma. *Am J Obst & Gyn* c 193 x 670

Ten cases of chorionepithelioma were studied by means of the Aschheim Zondek reaction before and for some time after the primary operation. Both patients are living and in the case of one of them repeated negative reactions following hysterectomy and X-ray and colloidal lead therapy have confirmed the clinical diagnosis of apparent health. In the case of the other the persistence of a strong positive reaction after the same treatment antedated the development of two small metastases in the vagina two months after the operation.

In one case of hydatidiform mole the reaction (Reaction 1) was negative six weeks after expulsion of the mole. In another case a strong positive reaction persisted for three weeks after delivery and curettage and a second curettage performed ten weeks after expulsion of the mole because of prolonged uterine hemorrhage associated with subinvololution of the uterus showed well developed decidua hydropica villi and isolated chorionic cells in the endometrium. There was no evidence of chorionepithelioma. Examinations of the urine have continued to give positive reactions for six months.

The amount of hormone of the anterior lobe of the pituitary gland which is excreted in cases of hydatidiform mole and malignant chorionepithelioma is greater than the amount excreted during normal pregnancy. This hormone is an etiological factor in the formation of lutein cysts of the ovary. The authors regard the Aschheim Zondek test as an important aid in the diagnosis and prognosis of hydatidiform mole and malignant chorionepithelioma.

E L CORNELL MD

Jannet J Wangermez and Robert Bressand. Metastases in Cancer of the Uterine Cervix. (*L. m. t. a. d. n. l. e. c. e. d. u. o. l. t. e.*) *G e t b t* 93 x 97

Before radium was employed few cases of metastasis in cancer of the cervix were reported but since the introduction of radium therapy the number has increased considerably and the opponents of the use of radium say that irradiation stimulates metastasis.

The authors review the literature and discuss fifty-one cases of cancer of the cervix in which there were blood and lymph metastases at a distance from the cervix. They found metastases in twenty-three cases that had not been irradiated and in twenty-eight cases that had been irradiated. According to these findings the incidence of metastasis is about the same in irradiated and non irradiated cases but as the number of cases treated by irradiation is today much greater than the number not so treated

there are fewer metastases in irradiated than in non irradiated cases. Moreover the cases that are irradiated are usually much more advanced than the cases that are treated surgically.

Young who has made systematic roentgen examinations of all of his patients before treatment has often found metastatic nodules in bones that were not suspected clinically. The longer survival after radium treatment often gives latent metastases a chance to develop. In some cases metastases appear soon after treatment and it is evident that the manipulations in the introduction of the radium and massive doses favor embolism. Therefore care should be exercised in inserting the radium to avoid traumatism such as curettage and dilatation without anesthesia and massive doses should be avoided and the regional glands should be irradiated even when they do not appear to be involved.

Another reason for the apparent increase of metastases after radium therapy is that careful and repeated examinations are now made of patients after irradiation and metastases are found that could not have been discovered fifteen years ago when inoperable patients were not subjected to further examinations. AUDREY G MOORE MD

Zweifel F. The Present Status of the Treatment of Carcinoma of the Cervix Uteri. *Am J Obst & Gyn* c 93 x 59

The methods of treating carcinoma of the cervix include surgery, irradiation and surgery and irradiation combined. Radical total extirpation can be carried out either vaginally or abdominally. Either method may be combined with irradiation. Irradiation may be given with the X-ray, radium or both.

Radical abdominal operation results in a cure in 20 per cent of the cases, radical vaginal operation in 17 per cent and irradiation therapy alone in 17 per cent. Irradiation may be given before or after or both before and after operation.

The combination of irradiation and surgery gives better results than surgery alone. Therefore surgery should never be performed without irradiation. Irradiation cures a certain percentage of inoperable cases and has practically no mortality. Improvement of results in carcinoma of the cervix will be obtained chiefly from improvement in diagnostic method. This is evident from the results of P Zweifel who obtained a permanent cure in 87 per cent of a series of cases which were diagnosed early.

Education of women to present themselves for diagnosis for every irregular vaginal bleeding is of prime importance. This should be a function of the Committees on Cancer Control and Hygiene of the League of Nations and funds for the purpose should be collected as for the control of epidemic.

In the discussion of this report WARD stated that as the number of surgeons who are competent to perform a radical operation for cancer of the uterus is comparatively small he does not accept the theory that operation alone is better than irradiation. Of 259 cases of cancer of the cervix seen in the

Woman's Hospital New York during a period of eleven years and three months 25.9 per cent were operable the lesion being limited to the cervix and 74.1 per cent were beyond that stage. In the cases treated with radium the primary mortality was 1.1 per cent an absolute cure was obtained in 43 per cent and a relative cure in 25.1 per cent. Of 170 cases treated by Ward's method with the use of radium alone a cure was obtained in 25.3 per cent. Ward believes that small doses of radium with irradiation whenever indicated (sometimes several years after the initial disease) will be found more satisfactory than large doses. He stated that more time is necessary to prove Zweifel's contention that the combined method will give the best results and until this is proved he will continue to employ irradiation alone.

BRETTAUER said that cancer statistics are not a reliable index of cancer results. Cancers differ in their pathological characteristics and therefore in their prognosis and as long as there is no uniform method of grouping the cases statistics are misleading. With the use of pre-operative irradiation complications such as vesical and urethral fistulae will become more frequent on account of technical difficulties caused by the irradiation. Cancer of the cervix is much less frequent in women of the Jewish race than in others.

VON MIKULICZ stated that for the last year and a half the Stoeckel Clinic in Berlin has been treating all cases of carcinoma of the cervix by operation combined with radium irradiation. Every patient first receives 2 radium irradiations of from 5,000 to 6,000 mgm hrs. distributed over the cervix and vagina. Three months after the beginning of the treatment in cases in which operation is possible (a large number of primarily inoperable cases become operable as the result of the irradiation) the Schauta-Stoeckel radical hysterectomy is performed. The operative mortality is between 7 and 8 per cent. After complete convalescence a deep X-ray irradiation is given. This is administered also in cases which did not become operable after the radium irradiation.

HEALY stated that in his opinion surgery is of very little value in carcinoma of the cervix except in cases in which the disease fails to respond to irradiation therapy satisfactorily and the uterus still remains surgically removable. If further irradiation is attempted in cases of the latter type persistent necrotic and painful ulcers will result. Hysterectomy will at least heal over the vaginal vault and render the patient more comfortable. External high voltage X-ray irradiation gives better results than low voltage X-ray irradiation. Healy recommends high voltage X-ray irradiation as a routine procedure in all unfavorable cases.

STOVE stated that at the present time a diagnosis of cancer of the cervix without any indication of the type of the cancer means nothing. He believes that the study of the histological characteristics of the various types of malignant tumors will aid materially in the choice of the method of treatment.

MCGLENN said that good results are determined chiefly by early diagnosis and this is dependent upon education of the public and the doctor.

TAUSSIG called attention to the fact that in spite of the efforts which have been made to educate the public and the doctor there has been very little improvement in the incidence of cure. People still fear to come to the doctor for treatment.

FARRAR emphasized that while the application of radium can be learned quickly skill in the technique of the Wertheim operation is acquired only over a period of years. C. L. CORNELL M.D.

Welbel W. Operation and Irradiation in Cancer of the Uterus (Operieren und Bestrahlen bei m Gebärmutterkrebs). *Strahlentherapie* 1930 xxxvii 302

In view of the great variation in material methods of treatment and individuality of attending physicians it is difficult to decide which is the best method of treatment for carcinoma of the uterus. Even statistics are difficult to compare because of the many factors which must be considered. The fight against cancer of the uterus must be better organized. The author believes that substantial progress might be made if a large number of institutions with abundant material would use a definite method of treatment with an exactly similar technique.

Today it appears to have been established that operation in early cases of carcinoma of the cervix and in operable carcinoma of the corpus gives a higher percentage of cures than irradiation therapy alone and that in about 10 per cent of inoperable cases a cure may be obtained by the use of radium. In other cases approximately the same results may be obtained by operation followed with irradiation treatment or by irradiation therapy alone. A particular advantage of irradiation therapy is its low primary mortality of from 1 to 3 per cent. The radical operation performed by the vaginal route has a primary mortality of more than 3 per cent and the radical operation performed by the abdominal route a primary mortality of more than 10 per cent. It would be well to search for a combination of methods with the advantages of each.

The author operates in all suitable cases and gives postoperative irradiation treatments repeating the latter for a long time once or twice yearly even when there are no indications of recurrence. In inoperable cases he gives combined irradiation with the roentgen rays and radium. RUMR (G)

#### ADNEXAL AND PERIUTERINE CONDITIONS

Capecchi E. Strangulation and Torsion of the Pedicle in Congenital Tubo-Ovarian Hernia (Sullo strozzamento e sulla torsione del peduncolo nelle ernie tubo-ovariche congenite). *Fol di Rome* 1930 xxxvii sez. chir. 490

The case reported was that of a child six months of age. When the child was four months old the



mother noticed a small swelling in the left inguinal region but paid no attention to it. Two days before the child was admitted to the hospital the swelling became hot and painful and vomiting occurred three times. At the time of her admission the abdomen was somewhat distended and the temperature 37.3 degrees C but the general condition was good. A diagnosis of ordinary inguinal hernia was made and operation performed. The contents of the sac were found to be a congested ovary and fallopian tube. A Bassini operation was done and the child discharged well after twelve days.

Inguinal hernia of the adnexa is relatively frequent in childhood particularly during the first year of life. The mother generally notices a small swelling in the inguinal region which as a rule is at first reducible. If a physician is consulted at this stage he is apt to make a diagnosis of ordinary simple reducible inguinal hernia unless he thinks of the possibility of tubo-ovarian hernia. If the hernia becomes strangulated it becomes painful and vomiting occurs. Rectal examination discloses at the inner ring of the inguinal canal a slender pedicle which can be followed up to the uterus. Thus the fallopian tube. If operation is not performed the local condition becomes worse with the development of redness, inflammation and pain. The general condition is not very seriously affected even in the cases of patients not operated upon until from eight to twelve days after the strangulation.

As a rule the nature of the contents of the hernia is not determined until operation. However heretofore the nature of the adnexa is suggested by the contrast between the poor local condition and the good general condition, the absence of obstruction to the passage of gas and palpation of the fallopian tube in the inguinal region on rectal examination. Failure to make a definite diagnosis is probably due partly to failure to consider the possibility of tubo-ovarian hernia. Of the seventy cases reported in the literature the nature of the contents of the sac was determined before operation as performed in only nine (12.8 per cent).

Tubo-ovarian hernia may be confused with inguinal adenitis but on careful examination the surface of the ovary will be found less regular than the surface of a gland and to be connected with the uterus. It may be confused also with cyst of Nuck's canal but the latter is always fixed and irreducible while even in cases of strangulated tubo-ovarian hernia there is generally a history of a period of reducibility. The vomiting in tubo-ovarian hernia is reflex and improves in a few days whereas the vomiting associated with strangulated intestinal hernia grows worse and gradually becomes fecaloid. It is impossible to differentiate clinically between true strangulation of a tubo-ovarian hernia and simple torsion of the pedicle.

Operation should be performed as soon as signs of strangulation develop. The technique is the same as that for ordinary inguinal hernia. As a rule the condition of the tube and ovary is such that r

duction would be associated with the danger of causing peritonitis. Therefore resection is usually necessary. Of the seventy cases which are reported in the literature reduction was possible in only four.

Before resection an examination should be made to see if there is any thrombosis of the uterine or ovarian vessels. Ligation in a thrombotic tract may cause fatal embolism. The only death from operation on the seventy cases reviewed from the literature was due to embolism. The results of operation are generally excellent in spite of the extreme youth of the patients.

AUDREY G. MOORE, M.D.

#### Ittand W. W. Primary Carcinoma of the Fallopian Tubes. *S. G. J. C. L. Ob. J.* 93: 1: 683

In a review of cases in which the fallopian tubes were removed at the Mayo Clinic during the period of 1910 to 1928 the author was able to find 149 cases of primary carcinoma of the fallopian tubes. Approximately 10,000 tubes were removed. The incidence of the condition was 0.11 per cent. Seven of the carcinomata were unilateral. The carcinoma was grossly involved the right tube in 3 cases and the left tube in 4 cases. Of the series of about 10,000 tubes 81 showed definite signs of carcinoma with but in 70 the gross was considered to be secondary in the tube. So far as could be determined 6 were secondary to carcinoma of the ovary and 8 were secondary to carcinoma of the uterus. Norris found only 1 primary carcinoma and 8 secondary carcinomata of the tube in more than 2,000 gynecological specimens. He reported also 62 carcinomata of the cervix and 32 malignant lesions of the fundus. Novak stated that of approximately 2,000 fallopian tubes studied at the Johns Hopkins Hospital Baltimore up to December 31, 1927 primary carcinoma was found in only 5. Its incidence being therefore 0.04 per cent. Such statistics certainly do not indicate that inflammation plays such an important part in the development of carcinoma of the fallopian tube as has been supposed by some.

With regard to the age incidence the author found that of 189 cases in which the age was recorded the condition occurred between the ages of forty and fifty years in 90 (47 per cent). According to Mantel the oldest patient on record was seventy-three years of age. The youngest patient so far on record (one of those treated at the Mayo Clinic) was twenty-six years old. According to S. Nage and Barth carcinoma of the fallopian tubes is most common at about the climacteric. Of the patients whose cases are reviewed by the author 4 were between twenty-five and thirty years of age, 6 between thirty and thirty-five years, 24 (13 per cent) between thirty-five and forty years, 44 (23 per cent) between forty and forty-five years, 46 (24 per cent) between forty-five and fifty years, 35 (18 per cent) between fifty and fifty-five years, 3 (1.2 per cent) between fifty-five and sixty years, 5 between sixty and sixty-five years, 1 between sixty

five and seventy years and 1 between seventy and seventy five years

**Gallagher W J Primary Carcinoma of the Fallopian Tube** *J Missouri State M Ass* 1930 xxvii 522

To the 196 cases of primary carcinoma of the fallopian tubes collected by Wechsler in 1906 the author adds 42 cases which he has collected from the literature since that time and a case of his own

Primary carcinoma of the fallopian tubes is most frequent between the ages of forty five and fifty years Its most constant sign is pain which was present in 56 per cent of the cases on record Pelvic examination discloses a mass adjoining the uterus but an accurate pre operative diagnosis is extremely difficult Early removal of both tubes and ovaries and the uterus together with a wide marginal area offers the best chance for permanent recovery The prognosis is generally doubtful Of 37 cases in which the ultimate outcome is known death occurred from recurrence in 20

The case reported by the author was that of a woman fifty two years of age A pre operative diagnosis of fibroid uterus was made because of the presence of a tumor in the left lower quadrant At operation the left tube was found to be swollen at the distal end and the left ovary to be cystic Microscopic examination of the tube revealed a medullary carcinoma The patient recovered and at the time this report was made five months after the operation was in good condition

LEOPOLD GOLDSTEIN M D

**Winter E W The Internal Secretion of the Corpus Luteum** (*Beitrag zur inneren Sekretion des Corpus luteum*) *Arch f Gyna k* 930 c h 548

The author succeeded in obtaining an oestrus inhibiting corpus luteum extract by the following extraction technique

Strictly fresh solid corpus luteum from the ovaries of cows (200 gm) was divided into small fragments rubbed up with anhydrous sodium sulphate and mixed with ether After from twelve to twenty hours the mixture was filtered and the ether removed in a vacuum In this process the temperature was not allowed to go above 40 degrees C as a temperature higher than that will prevent the oestrus inhibiting action of the extract The residue was taken up in acetone After another period of from twelve to twenty hours the solution was again filtered and the acetone was removed from the acetone soluble portion in a vacuum There then remained 1.4 c cm of a brown oil

In the white mouse oestrus was prevented as long as desired by the daily injection of from 0.2 to 0.3 c cm of the extract When the injections were stopped the normal oestral cycle recurred The ovaries of the treated mice were small and showed very small follicles

The products of a number of other methods of extraction which were tried and are described failed

to inhibit oestrus An attempt to obtain the active substance in an aqueous solution was also unsuccessful

In experiments on rats in which a fine silk thread was drawn through one horn of the uterus by means of a flat needle and treatment with 0.4 c cm of the extract was given for two days before and four days after the introduction of the thread a so called placenta (a histological change of the endometrium with papillary processes into the lumen of the uterus which enclosed cyst like structures) developed around the silk thread and the uterus became enlarged to twice its normal size The same changes occurred in castrated rats which were brought into oestrus by folliculin and then treated in the manner described They were produced also by the hormone of the anterior lobe of the pituitary gland In untreated animals and in animals that were treated only after the insertion of the thread the silk thread healed in without any reaction even when a much larger number of injections (up to twenty) were given On the other hand the corpus luteum extract caused a moderate enlargement of the mammary glands and thickening of the uterine horns

HARTSFEIN (G)

**Cotte G Cysts of the Corpus Luteum and Amenorrhoea** (*Kysten du corps jaune et amenorrhée*) *Lyon chir* 930 xxvii 613

The author reports the cases of three women who came to him reporting that the menstrual periods were delayed for from twelve to twenty days and that they felt just as in their previous pregnancies In each case there was a mass in the adnexa which suggested an ectopic pregnancy Operation was performed in all of the cases and in two of them the affected ovary was removed although the author believes that frequently partial resection or even enucleation of the cyst would be sufficient It is often impossible to differentiate between a cyst of the corpus luteum and ectopic pregnancy Under such circumstances operative intervention should not be delayed

A corpus luteum may become cystic at any stage in its development but the effects of the change differ according to whether the cyst develops while the corpus luteum is progressing or while it is retrogressing The cyst does not cause amenorrhoea with signs of pregnancy unless the cells of the corpus luteum are still secreting actively A histological study of the characteristics of the lutein cells at different stages of their evolution would doubtless clear up many obscure biological problems When the author injected fluid from ovarian cysts into normal and castrated rats he found that the results were quite different according to whether the cysts were lutein or follicular cysts Meyer thinks that cyst formation in the corpus luteum may be caused by a disturbance of function of the anterior lobe of the hypophysis the hormones of which influence not only the maturation but also the luteinization of the follicle

AUDREY G MORGAN M D

## EXTERNAL GENITALIA

Sharman A. Leucorrhœa in the Virgin. *J Obs & Gynæc Brit Emp* 1930 x 1 483

The pathogenesis of leucorrhœa is varied and often complicated. The author includes in his article a tabulation of all possible etiological factors.

In the majority of two cases of leucorrhœa in the virgin in which very detailed bacteriological studies were carried out a staphylococcus and streptococcus a fungus and staphylococcus or a staphylococcus and coliform micro-organism were found. *Trichomonas vaginalis* was discovered in none.

In almost two thirds of the cases of leucorrhœa in the virgin the condition occurs between the twentieth and thirtieth year of age. In most cases it is associated with dysmenorrhœa or any other complaint.

A follow up of seventy six patients showed that the results of hospital treatment were unsatisfactory.

Numerous conditions may be causes or at least associated factors but in many cases no definite cause is apparent.

Anæmia constipation and tuberculosis are not etiological factors. A congenital erosion is often unaccompanied by leucorrhœa and the latter may be quite relieved when an erosion is presumed and cause is excised or otherwise cured.

Leucorrhœa varying in profuseness from time to time and associated with prolonged intervals of amenorrhœa or very scanty menstruation and iliac pain or b. chache is sometimes present in cases of endocrine imbalance of the ovaries or thyroid ovarian type.

Fungus infections of the vagina—thrush and yeast—are commoner than is generally believed.

Although the *trichomonas vaginalis* was not encountered in the series of cases reviewed the possibility of the presence of this parasite in virgins should be borne in mind.

A careful evaluation of the history must be made. It is necessary to determine whether the condition is a minor and temporary symptom due to a temporary disturbance of the general health or a true profuse and persistent leucorrhœa. In cases of the first type measures to improve the general health purgation hæmatinics fresh air and exercise usually effect a cure whereas in the case of the second type they are of little benefit.

The patient should be examined under anaesthesia. A vaginal fresh drop (in normal saline solution) and bacteriological smears and cultures from the vagina should be examined. As a rule smears and cultures should be taken also from the cervix and uterine cavity but the vulva and vagina should be examined first since if these parts are found to be the source of the excessive discharge dilatation of the cervix will be unnecessary.

Indiscriminate douching is to be condemned not only because it is painful objectionable and very difficult in the cases of virgins unless a special nozzle or catheter is used but also because it is almost of no value.

Routine dilatation and curettage of the uterus is unscientific. The treatment should be based on the findings in the particular case.

When no apparent cause can be discovered radostoleum (a mixture of Vitamin D and a concentrate of Vitamin A) may be given a trial for at least a month. If this fails cauterization of the cervix with the thermocautery should be done.

H. R. V. B. MATTHEW M.D.

## MISCELLANEOUS

Don Idson M. Radium in Menorrhagia and Irregular Uterine Hemorrhage. *Brit Med J* 1930 813

Kreitmayer M. L. The After Effects of Internal Uterine Radium for the Production of the Artificial Menopause. *Brit Med J* 1930 815

DONALDSON emphasizes the importance of making a diagnosis in cases of irregular uterine hemorrhage and menorrhagia. When there are no gross abnormalities he tries conservative treatment for a few weeks and if this causes no improvement he explores the uterus. In the cases of women over forty years of age the treatment of choice for irregular hemorrhage without gross pathological lesions is the induction of the artificial menopause by means of radium. The optimum dose is 5 mgm of radium screened with not less than 0.5 mm of platinum and kept in the uterus for forty eight hours. In the cases of young women the induction of temporary amenorrhœa with radium must be considered when other forms of treatment fail. In such cases larger doses are required to produce amenorrhœa and as the position of the ovaries is unknown it is impossible to be certain of giving a dose that will be efficient and yet not produce permanent amenorrhœa.

KREITMAYER reviews the cases of ninety seven women in whom radium irradiation by the technique advised by Donaldson was given to induce an artificial menopause in the treatment of excessive or irregular uterine hemorrhage without gross abnormality. In all of these cases except nine the initial dose produced amenorrhœa. The failures occurred in the younger women. Menopausal symptoms were prominent sequelæ of the treatment. Seventy six of the patients reported later that they were benefited by the treatment and only three stated that their condition was worse. A large percentage complained of pain but many had pain before the treatment. H. R. V. B. NELSON M.D.

Riddoch G. Nervous and Mental Manifestations of the Climacteric. *Brit Med J* 1931 1 987

There are three stages in the clinical picture of the climacteric: (1) the premenopausal, (2) the menopausal and (3) the postmenopausal. The basis of climacteric symptoms is ovarian insufficiency resulting in instability of certain endocrine glands and through these glands in instability of the autonomic nervous system. This physiological disturbance tem-

porarily upsets the mental as well as the physical balance giving rise to emotionalism with a general tendency toward gloominess apprehension and irritability. The more usual symptoms of the normal climacteric are emotional instability vasomotor reactions and changes in sex feelings.

At the onset of the climacteric slight changes in the woman's temperament are noted by the members of her family and by her intimate friends. She becomes easily worried takes a gloomy view of life and seems to be in a state of mild anxiety and apprehension. Her sleep is disturbed by flushes and dreams of domestic trouble and she awakes early with a worried mind. As the day goes on she improves and by afternoon is practically normal.

The flushes occur in attacks which may be momentary or last for several minutes and vary in intensity. Frequently they are worse at night when they are excited by the warmth of the bed. The longer attacks may be preceded by headache palpitation or a sense of oppression in the chest. These symptoms cease with the onset of the flush. The flush consists of an erythema distributed chiefly to the head and neck and accompanied by a general sensation of warmth with or without heat waves.

Mental disorders which may be associated with the climacteric are of two varieties—psychoneuroses and psychoses. The basic psychoneurotic symptoms are anxiety gloominess and physical discomfort which differ only in degree from the similar symptoms which may be regarded as normal at the time of the climacteric. For practical purposes one may consider the boundary line between the normal and abnormal to have been crossed when emotionalism is persistent and severe enough to lead to a more or less pronounced change in behavior and to invalidism. According to Smith the climacteric is a cause or an associated factor in 82 per cent of the cases of insanity in women admitted to hospitals for the insane. Complaints referred to imperfect functioning of the intestinal tract heart or other organs are almost constant and delusions and hallucinations occur at some time in all but the milder cases. Delusions tend to be associated especially with ideas of unworthiness death and poverty and are apt to have a strong sexual coloring. Phases of inactivity occur. These may amount to stupor but are broken by periods of agitation. The danger of suicide is ever present and is probably greatest when the depression is less severe as at the beginning and toward the end of the illness. Therefore the woman should never be left alone.

ANTHONY F. SAVA, M.D.

Condamin R. Inflammation of the Fibroconnective Tissue—Cellulitis—and the Sclerogenic Processes of the Connective Tissue of the Pelvis in Woman (La fibro-conjonctivite—cellulite—et les processus sclérogènes du tissu conjonctif du bassin chez la femme) *Gynécologie* 1930 xxix 321 385 513 577

In the presence of menstrual or other pelvic congestion slightly oedematous tumefactions small

beads of various sizes which are painful on pressure and disappear when the pressure exerted upon them is sufficient and prolonged are to be found in the cul de sac of Douglas and complaint is made of a sensation of weight in the pelvis and vague pains especially pain on pressure or traction. This is the very beginning of cellulitis. If the condition recurs regularly at menstruation a decrease in the suppleness of the cul de sac of Douglas will be noted in the intervals between periods. The cul de sac becomes retracted and pressure becomes increasingly painful. Spontaneous pain begins and pain is provoked by walking. This is the second stage of cellulitis. After some years there is a fibrous transformation of the entire thickness of the cul de sac of Douglas and the uterus and rectum are almost in contact with each other because of plastic retraction which has destroyed the connective tissue between them. This is the third stage of cellulitis. The symptoms of this stage include pain in the kidneys irradiating into the lumbar region pain in the buttocks and genitocrural region and rheumatoid pains in the shoulders the nape of the neck and the region of the trigeminal nerve. Under massage these pains cease almost completely. Other symptoms are asthenia neurasthenia and disturbances of micturition and defecation.

The treatment of cellulitis of the female pelvis should be directed toward obtaining suppleness of the fibroplastic tissues distending the fibrous retractions and maintaining the result by continuous distention. The first object is accomplished by massage the second by hydragogue tamponade which diminishes the afflux of blood increases the absorption of exudates causes regression of the hyperplastic tissues and reduces displacements and the third by the wearing of a pessary. Supplementary measures include dilatation of the internal cervical os with intra uterine lavage and cauterization with iodine supplementary surgical interventions or replacement and special exercises.

Condamin discusses Staphylococcus pelvic cellulitis congestive oedematous and arthritic inflammation of the fibroconnective tissue of the pelvis inflammation of the fibroconnective tissue around the neck of the bladder and in the right iliac fossa star shaped and lateral parametritis Muller's periparous parametritis Freund's atrophic parametritis Schultze's posterior parametritis and chronic inflammation of the fibroconnective tissue of the cul de sac of Douglas.

PAGE

Hamant A. Cornil L. and Mosinger M. Tubal Endometriosis and Endometrioma (Les états endométriaux. L'endométriose et l'endométrion tubaires. Etude anatomique et clinique) *P. 556 mtd Par* xxxvii 1345

Histologically considered the endometrioma consists of mucosa of the uterine type which is endowed with a remarkable power of infiltration by way of the lymphatics and veins. Only rarely does it degenerate into an epithelioma. It is the only tumor the growth

of which seems to be intimately related to the functions of an endocrine gland. Arising in the genital tract it shows all of the phases of the menstrual cycle and disappears at the menopause. When there are no ovaries there is no endometrioma. The authors believe that the most important factor in the pathogenesis of endometrioma is ovarian dysfunction and that tubal endometrioma which heretofore has been considered merely a histological curiosity should receive more attention from the pathologists.

The lesions found in the fallopian tubes are of three types:

1. An endometrioid condition in which the tubal mucosa shows a more or less gross resemblance to the uterine mucosa. The epithelial cells frequently vary in form and the pseudoglandular structures frequently have an irregular cystic aspect. This condition is quite often of infectious origin. Nodular isthmus salpingitis (Chiari) and adenomyoma of the tubes (von Recklinghausen) should be studied with tubal endometriosis and endometrioma because whether inflammatory or not lesions of this type favor the development of endometriomata.

2. Tubal endometriosis characterized by transformation of the normal fibrillary chorion into a cytogenic chorion (adenocytosis and adenocytomyosis of Lahm).

3. Tubal endometrioma—a benign tumor resulting from the proliferation of mucosa of a uterine character which invades the wall of the tube and extends by continuity to the neighboring organs. In short a proliferative endometriosis.

These three types may be found isolated or together. In one and the same tube the authors have observed the transformation of an endometrioid lesion into an endometriosis and endometrioma.

Clinically the most common symptom is pain due to perimetritis or perisalpingitis which are frequent complications of tubal endometriosis. The usual complications of tubal endometriosis and endometrioma are due in part to the menstrual reaction of the modified tubal mucosa and in part to the spread of the tubal endometriosis to the neighboring organs: polyoid or malignant transformation of the endometrial tissue or mechanical obstruction of the tube by endometriosis. The most important complication is extra uterine pregnancy.

Preventive treatment consists of minute care at gynecological operations. In cases of bilateral lesions with perimetritis and perisalpingitis hysterectomy should be done. In cases of circumscribed lesions unilateral salpingectomy is apt to be followed by recurrence and it is advisable to induce temporary castration by radium or X-ray irradiation.

JACOB F. KLE, M.D.

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Matthews H B The Roentgen Ray as an Adjunct in Obstetrical Diagnosis *Am J Obst & Gynec* 1930 xcv 61

A positive roentgenogram of the fetal skeleton is proof of the existence of pregnancy. This may be added as a fourth positive sign of pregnancy and may be obtained as early as the fourteenth to fifteenth week in 15 per cent of cases after from sixteen to eighteen weeks in 75 per cent and after the eighteenth week in all cases.

A positive diagnosis of normal and abnormal pregnancy including many types of fetal abnormalities can be made by roentgen examination provided the pregnancy is at or beyond the eighteenth week. The farther advanced the pregnancy the more positive the diagnosis.

A positive diagnosis of fetal death can be made by roentgen examination apparently within three or four days after the death provided the pregnancy is at or beyond the sixteenth week. This is based on Horner's sign and bowing of the vertebral column.

A positive diagnosis of pregnancy complicating fibroids of the uterus can be made by roentgen examination provided the duration of the pregnancy is sixteen weeks or more.

A positive differential diagnosis between pregnancy and pelvic tumor (soft myoma, ovarian cyst etc.) can be made by the roentgen examination provided the pregnancy is at or beyond the sixteenth week.

The filming dosage recommended is perfectly safe for the fetus.

Every patient who is to be delivered by cesarean section should have a roentgenogram taken to determine the normalcy of the child.

A positive roentgenogram may be offered in court cases as proof of the existence of pregnancy.

It is highly desirable that the obstetrician cooperate with the roentgenologist and thereby help to develop, simplify and popularize roentgen examination as an adjunct in obstetrical diagnosis.

E L CORNELL M D

Behney C A Extra Uterine Pregnancy *J Am W As* 1930 xciv 557

The author reviews 167 cases of extra uterine pregnancy. The condition occurred most frequently in women between the twenty seventh and thirty fifth years of age. The high incidence of ante flexion of the uterus and of irregular and delayed menstruation indicated an association between ectopic pregnancy and genital hypoplasia. The majority of the women were multiparæ but as parity increased the incidence of ectopic pregnancy decreased.

Cases of extra uterine pregnancy may be classified clinically into 3 groups.

The first group are obscure cases of long standing rupture in which encapsulation of the product of conception has taken place and symptoms are produced by infection of the pelvic hæmatoma or adhesions. Of the cases reviewed 65 per cent were of this type.

The second group are the non urgent cases in which there is no necessity for immediate operation.

The third group are the cases with signs of alarming internal hæmorrhage in which prompt operation is required. Of the cases reviewed 74.8 per cent were of this type. A pulse rate above 110 was accepted as the criterion of urgency.

The most reliable basis for the diagnosis is a history of amenorrhœa with recurring pain localized in the lower abdomen, metrorrhagia, signs of pregnancy and a typical pelvic mass.

HARRY M NELSON M D

Hellmuth K and Timpe O The Change in the Amount and Form of the Blood Calcium During Pregnancy (Die Aenderung des Kalkspiegels und der Zustand form des Calciums in der Schwangerschaft) *Arch f Gynaek* 193 cxli 479

In order to solve the problem of the changes in the amount and form of the calcium content of the blood during pregnancy a problem that has been studied by numerous investigators including Jansen, Bokelmann and Bock, Novak and Porges, Rona and Takahashi, von Oettingen and others, the authors undertook further investigations to verify the findings previously reported.

The determinations of the amount of calcium in the blood serum were made according to the method of De Waard on the following groups of women: (1) 23 non pregnant women, (2) 41 women in the first half of normal pregnancy, (3) 10 women in the second half of normal pregnancy, (4) 34 women in labor and (5) 22 women in the puerperium. The diet of the women consisted of ordinary mixed foods.

The blood was taken from an arm vein in the morning soon after the women arose, collected in 40 ccm tubes and centrifugalized after half an hour. The calcium content of the serum obtained in this way was found to be as follows: non pregnant women 10.5 mgm per cent, women in the first to the fifth month of normal pregnancy 10.2 mgm per cent, women in the sixth to tenth month of normal pregnancy 10.0 mgm per cent, women in labor 9.7 mgm per cent and women in the puerperium 10.2 mgm per cent. These figures which are averages agree favorably with the findings of other investigators. They show that the calcium content of the blood decreases from the beginning of pregnancy.

reaches its lowest point during labor and then rapidly rises again in the puerperium.

The second part of the investigation consisted of determinations of the total calcium and its dialyzable portion. So far as possible these determinations were made on one and the same woman at different times during pregnancy. The total calcium was determined according to the method of Kramer and Tisdall and the dialyzable portion in the serum by rapid compensation dialysis according to the method of Rona, Haurwitz and Petto. The dialysis containers were made of collodion. The apparatus is described and shown in illustrations. Five calcium chloride solutions with a calcium content ranging from 6.5 to 2.7 mgm. per 100 ccm. were used as the external fluids. The preparation of these solutions is described in detail. Five cubic centimeters of serum were always dialyzed against 5 ccm. of the outer fluid for three hours. The figures obtained are grouped in a table. The table shows that the total calcium which amounted to 10 mgm. in the fourth month fell to 9.3 mgm. in the tenth month. While there was a distinct increase in the values in the eighth and ninth months, this was within the limits of error of the method ( $\pm 5$  per cent) and therefore of no special significance.

In order to obtain the most accurate results possible serial determinations were made in various months of pregnancy in the cases of a number of the women because the average of single determinations on different women depends too much upon chance. It was found that in one and the same woman there was always a distinct decrease in the total calcium up to the tenth month of pregnancy and that the dialyzable calcium decreased correspondingly. From the fourth to the tenth month of pregnancy the dialyzable portion of the total calcium decreased from 60.4 to 58.1 per cent and in serial determinations on the same woman it averaged from 50 to 60 per cent of the total calcium. It is therefore evident that there is no increase in the dialyzable portion of the calcium during the course of pregnancy and the assumption of Bickelmann and Bock of an increase of the dialyzable calcium is not justified as the fluctuations fall within the limits of error. If the assumption that the nutrition of the fetus occurs by diffusion through the placenta was correct there would be an increase in the dialyzable portion of the calcium during the course of pregnancy corresponding to the increasing demand for calcium by the fetus. As the determinations here reported showed no such increase active resorption of calcium through the fetus or an activity of the placenta supplying calcium to the fetus seems to be a possibility.

F. SIGERT (G)

Iuppel E. Placenta Prævia (Zur Frage des Placenta prævia). *Monatsschrift für Geburtshilfe und Gynäkologie* 1933, 133, 46.

The author presents statistics on 73 cases of placenta prævia (16.4 per cent those of primiparae)

which occurred in 7,936 labors. As history of demonstrable previous disease of the endometrium was given in only 34 cases the material presented no new insight into the causes of the pathological condition.

The author discusses the therapeutic possibilities on the basis of his own results and recommends the Braxton Hicks technique for the general practitioner. He emphasizes however that even this procedure requires a certain amount of experience in vaginal operations and that it may be very difficult to draw the leg of the fetus through a cervical admitting only 2 fingers without causing injury to the mother. He believes that metrorrhysis is too difficult for the general practitioner and tamponade should be done only to allow transportation of the patient to the hospital. On the other hand the hospital can fulfill its obligation to save the mother and child only by abdominal caesarean section.

In cases in which caesarean section was performed by Puppel there was no maternal mortality and the fetal mortality was 8 per cent whereas in cases of vaginal delivery the maternal mortality was 10.5 per cent and the fetal mortality 36 per cent. The author admits however that the maternal mortality is not always so low as in one year the mortality in his cases of caesarean section performed for most varied indications was 8 per cent. He performs abdominal caesarean section for placenta prævia not only when there is a living child at term but also when the fetus is dead and there is severe hemorrhage since by this procedure he is able to obtain the most certain and rapid hemostasis. He disapproves of vaginal caesarean section in placenta prævia because of the fragility of the lower segment of the uterus.

W. A. SCHMIDT (G)

Brandrup E. On the Pathogenesis of the Substance from Mother to Fetus in the Last Part of Pregnancy. *Acta Obstetrica et Gynecologica Scandinavica* 1933, 12, 25.

The author describes a special technique by which it is possible to make concurrent serial analyses of the blood of the mother and fetus after intravenous injection into the mother of the substance to be studied with regard to its passage from the mother to the fetus. He then reports the findings of a number of experiments on the passage of glucose, accharose, lactose, arabinose and xylose. The passage of glucose and pentoses is explained as a slow diffusion through a passive membrane. To disaccharides the placental epithelium is almost impermeable.

Esch P. The Treatment of Hyperemesis Gravidarum. *Ueber die Behandlung der Hyperemesis gravidarum*. *Festschrift für Dr. T. A. P.* 1930, 37.

Not infrequently the treatment of hyperemesis gravidarum is begun too late because the transition from emesis to hyperemesis occurs insidiously and after its occurrence the vomiting is often regarded as being still physiological. Hence it is advisable at least in the cases of women who are delicate to

treat the vomiting early. The patient should have her breakfast in bed and should be given small easily digested meals at frequent intervals. Properly applied psychotherapy plays an important part in the treatment of hyperemesis. Removal of the patient from the family also acts in a psycho-suggestive manner. Not rarely the uncontrollable vomiting ceases after her transfer to a hospital. In not too severe cases drug therapy may be considered. As hypochlorhydria is often present the administration of small amounts of hydrochloric acid are indicated. If these measures are not beneficial strict rest in bed is indicated and the administration of nutriment by mouth should be temporarily stopped. As fluids are absolutely necessary a 10 per cent glucose solution should be given by Murphy drip. When the fluid is not retained in the rectum an intramuscular infusion of sodium chloride solution or normal saline is indicated. When there is marked loss of strength the intravenous administration of caloric or a 10 per cent glucose solution should be considered. For sedation 0.5 gm of potassium bromide may be added to the infusion. In a considerable number of cases 5 c.c. of a 10 per cent solution of sodium chloride were injected intravenously with good results.

At the University Gynecological Clinic thirty-one cases were treated by the measures discussed. All of the patients were discharged cured. In 4 cases 0 c.c. of blood or serum from a pregnant woman were injected intramuscularly in addition. In the case of one patient who was in a serious condition when admitted to the hospital interruption of the pregnancy was necessary. Important factors to be considered in determining the advisability of interruption of the pregnancy are fever, icterus, albuminuria, cerebral symptoms (such as apathy, unrest and delirium), acceleration of the pulse and loss of weight. F. T. MEYER (G.)

Scriber W. de M. and Oertel H. Necrotic Sequestration of the Kidneys in Pregnancy (Symmetrical Cortical Necrosis). *J. Path. & Bacteriol.* 1930 xxxiii 071

The authors review the literature on necrotic sequestration of the kidneys in pregnancy, tabulate the findings in the cases recorded to date and report three cases of their own.

In the majority of cases the condition follows a complication of pregnancy. The most frequent complication is retroplacental hemorrhage.

There may be no clinical signs to suggest renal involvement beforehand. The most common sign is edema of greater or lesser degree. Anuria may be the first clinical manifestation. This may occur up to five days after delivery and in fatal cases lasts from two to thirteen days. In general the duration of life is directly proportional to the amount of urine secreted.

The few studies made on the urine have shown albuminuria in all cases and the presence of red blood cells in the majority. In examinations of the blood the authors found a rapid rise in the nitro-

genous constituents with a notably rapid accumulation of creatinin as compared with the slow increase in this substance in chronic interstitial nephritis. The findings resembled those in acute obstruction resulting from bilateral blockage of the ureters. The blood pressure showed a marked variation.

In their discussion of the pathology of the condition the authors state that necrotic sequestration in the kidney of pregnancy is the result of a terminal segmentary arterial collapse (vasoparalysis) with blood stasis and segmentary thrombosis with proximal extensions. They conclude that the assumption of a paralytic terminal segmentary circulatory down fall (peristasis, prestasis and stasis) is in better harmony with the findings than the theory of vascular spasm and ischemia. GEORGE W. PHILLAN, M.D.

Brown R. C. The Intestinal Origin of Eclampsia. *Brit. M. J.* 1930 ii 859

The pathological changes in eclampsia can be explained best on the basis of toxæmia. The condition appears to have its origin in the pregnant uterus arising either from the fetus or the placenta but most probably from the placenta. It is suggested that a primary toxin of unknown origin damages the liver so that substances from the portal blood pass unchanged into the systemic circulation and produce a secondary toxæmia and that the latter is responsible for the convulsions. The fact that the periphery of the liver lobule is most affected is explained by the assumption that the primary toxin is brought there by the hepatic artery and takes effect where it is most concentrated.

In support of this theory the author points out that women developing eclampsia usually suffer from constipation and indulge in dietetic excesses being therefore in a suitable condition for the development of intestinal toxæmia.

GOODRICH C. SCHAUFLER, M.D.

Cotte G. Cyst of the Corpus Luteum and Pregnancy (Kyste du corps jaune et grossesse). *Lyon chir.* 1930 xxvii 640

The author recently reported three cases in which cysts of the corpus luteum caused signs of ectopic pregnancy. In the case reported in this article ectopic pregnancy was suggested by a mass in the adnexa but operation disclosed a true pregnancy with cystic degeneration of the corpus luteum of pregnancy. The cyst was resected with preservation of the ovary and when the patient was last seen the pregnancy was progressing normally.

Histological examination of the specimen showed that the corpus luteum was undergoing retrogression. The fact that the removal of such a corpus luteum in the stage of retrogression may not have any effect on pregnancy does not prove that the corpus luteum is of no importance in pregnancy. It seems quite certain that after having prepared for the mucosal implantation of the ovum the corpus luteum ensures continuation of the pregnancy. Recent work by Cornu has shown that as a rule



the removal of a corpus luteum of pregnancy is followed by abortion. Surgical destruction of the corpus luteum which is equivalent to its retrogression is followed by submucous uterine hemorrhage which ends in expulsion of the decidua and the ovum. The inhibiting action of the corpus luteum on hemorrhage is reinforced by the action of the implanted ovum. As the pregnancy progresses the developing ovum gradually takes the place of the corpus luteum and the influence of the latter decreases progressively. For some time however the inhibiting action of the ovum is not sufficient to prevent hemorrhage and abortion. During this time the corpus luteum is necessary and its removal will cause abortion unless the activity of the ovum is exaggerated and sufficient alone to prevent hemorrhage. While an ovum of very great vitality may become implanted and develop in spite of poor preparation of the mucous membrane and an insufficient corpus luteum this is exceptional.

ALFRED G. MORGAN M.D.

Elss S. Pregnancy with Bilateral Ovarian Cysts  
1m J S g 93 338

In from 4 to 20 per cent of cases of pregnancy complicated by an ovarian tumor abortion or premature labor results from incarceration of the tumor or the uterus within the pelvis resulting of the pedicle of the tumor adhesions pressure from the tumor or infection. When a hysterectomy is performed interruption of the pregnancy results more frequently during the second half of the period of gestation than during the first half. Therefore a tumor of the ovary discovered during the second half of pregnancy should be left alone unless definite indications for its removal are present. A small tumor which is freely movable and high in the abdomen may be left undisturbed without danger to the mother or the child.

The author reports a case in which a diagnosis of bilateral ovarian cyst with twisted pedicles or rupture of the cysts was made and operation disclosed a cyst the size of a large melon in the left ovary and a cyst the size of a grapefruit in the right ovary. Both cysts were ruptured and had twisted pedicles. The pregnancy as in about the fourth month. Bilateral oophorectomy was done. The cysts were simple cystomata. The patient made an uneventful recovery and was delivered at term of a living normal male child.

GOODRICH C. SCHAEFFLER M.D.

## LABOR AND ITS COMPLICATIONS

Burger P. Spasmodic State of the Uterus and  
Their Treatment (Su le état spasmodique d  
l'utérus et leur traitement) Gynéc. et Obst. 93  
x 1

Spastic states of the uterus during labor are characterized by unequal duration of the uterine contractions and of the intervals between them pain which is more severe than under normal conditions

and most intense in the cervix and prolongation of labor due to very slow dilatation of the cervix.

The theories advanced to explain these states are varied but all are based on the assumption that some resistance to the work of the uterus excites the irritability of the musculature. It has been suggested that the obstacle is a congenitally resistant cervix or a cervix that has become rigid as the result of inflammatory changes. A congenitally resistant cervix is rare and an apparently sclerotic rigid cervix will rapidly dilate following the administration of a narcotic. It therefore seems apparent that in most cases the origin of the uterine tetany must be sought in the body of the uterus.

Normally as long as the membranes remain intact the uterine muscle slides over the membranes as it retracts behind the products of conception. When this play between the membranes and uterine

muscles does not occur the resistance deranges the normal mechanism of dilatation the myometrium becomes irritated and the contractions become spasmodic. Rupture of the membranes is sufficient to restore the contractions to normal. De Raigne has found alterations of the decidua in such cases and the author has often noted a tendency to tard retention of the membranes after delivery. The cause of abnormal adhesion of the membranes to the decidua is believed to be a previous infection.

It is impossible to distinguish between the uterine spasm originating in the body of the uterus and that originating in the cervix.

The author's concept of slow labor with uterine spasm consists first in the administration of a narcotic. This is sufficient in most cases to restore the normal course of labor. When it fails the membranes are ruptured. When both procedures fail the condition is due to a true organic resistance in the cervix which demands radial incisions or possibly caesarean section.

ALBERT F. DE GARET M.D.

Tagliero P. A Case of Rupture of the Uterus  
During Labor (Un periposito di rottura  
dell'utero durante il parto) Riforma ginec. 193  
39

Many obstetricians claim that rupture of the uterus never occurs unless the uterine wall has been weakened by disease, scar tissue or some other cause. The author reports a case illustrating some of the factors leading to rupture.

The patient was a multipara of thirty-five years whose previous pregnancies and deliveries had been normal. During the pregnancy under consideration she had had an unusual feeling of tightness and distention of the abdomen. On April 30 the membranes ruptured spontaneously and an abnormally large amount of fluid was discharged. Labor pains began during the afternoon of May 3. At first they were short and occurred at long intervals but the next morning they increased in frequency and length. When at 2 p.m. they were almost continuous the midwife called in a physician. Following the administration of 2 c.c.m. of thymophysin

the patient complained of general abdominal pain and the labor pains stopped. She was then sent to the author's hospital where rupture of the uterus was found and after extraction of the fetus and placenta total hysterectomy was done. Uneventful recovery followed.

In this case there was evidently a moderate degree of hydramnios. The excessive distention of the uterus caused inertia for three days. The fetus was unusually large (4 00 gm) and presented by the face. The uterus delivered the fetus more or less completely into the lower segment which he came thru. The patient weighed almost 120 kgm and her obesity obscured the symptoms of threatened uterine rupture. Under these circumstances a large dose of thymophysin was given and completed the rupture. The author does not think that this result argues against the use of thymophysin under proper conditions and in the proper dosage.

Histological examination of the uterine tissues showed round cell infiltration possibly due to local inflammation which was not surprising in view of the long time between the rupture of the membranes and the operation. There was an increased amount of connective tissue in proportion to the muscle tissue in the lower segment. This is not unusual in multiparæ. It is due to the fact that even in normal deliveries a number of muscle fibers are ruptured and scar tissue is formed. This is why rupture is more common in multiparæ than in primiparæ.

The mortality of uterine rupture under conservative treatment is high. The author thinks hysterectomy is preferable in all cases whether the rupture is complete or incomplete. Some obstetricians advocate the use of a Mikulicz drain after the operation but the modern tendency is to close the wound completely. The author used a subcutaneous drainage tube in the case reported because of the patient's obesity and the fact that the abdominal wall was solid.

In cases in which rupture is to be feared on account of a previous cesarean section abnormal presentation or malformation of the pelvis the patient should be kept under observation during the last two months of pregnancy. No echolic should be given and during labor the patient should be watched very carefully for the signs of distention of the lower segment and should be told not to exercise exaggerated abdominal pressure.

AUDREY G. MORGAN, M.D.

Hasselblatt R. Clinical Studies of Intrapertoneal Cesarean Section Especially the So Called Low Cesarean Section (Klinische Studien ueber die intraperitoneale Schnittentbindung insbesondere ueber die sog. Sectio caesarea prolunda). *Acta obst. et gynec. Scand.* 1930 x Supp.

The purpose of this article is to report the results obtained by abdominal cesarean section at the University Obstetrical Clinic in Helsingfors and compare them with the results obtained under similar conditions by vaginal operations.

The author reviews 275 cases in which abdominal cesarean section was performed in the period from 1900 to 1927. The frequency of abdominal cesarean section in relation to the total number of deliveries during this period was 275/57 305 or 0.48 per cent. In the last ten years it has been 1.03 per cent.

In 248 cases the technique was that of the low cesarean section with in 14 cases extraperitonealization of the uterine wound. In 17 cases the classical cesarean section was done and in 10 cases a mutilating operation was performed on the child. In 206 cases (74.91 per cent) the indication was disproportion between the pelvis and the fetal head, in 13 cases placenta prævia, in 29 cases eclampsia and related conditions and in 27 cases miscellaneous conditions.

In 49 cases (17.82 per cent) sterilization was done in addition. In the cases of multiparæ without living children and in those of primiparæ sterilization was done only exceptionally.

The maternal mortality was 8 deaths (2.91 per cent). If 4 cases of eclampsia are subtracted it was 1.47 per cent. The gross fetal mortality was 6.9 per cent and the corrected fetal mortality 3.0 per cent. In the cases of low cesarean section the maternal mortality was 1.47 per cent and the fetal mortality 2.42 per cent. The total puerperal mortality was 23.22 per cent.

There was no evidence in these cases that the rupture of the membranes was of any decisive importance in the mortality or morbidity. Neither was there any indication that vaginal examinations carried out in accordance with the demands of asepsis are so dangerous that they should be replaced by other methods.

Recently a bimanual examination has been made in all borderline cases of disproportion since in this way it is possible to prevent many unsuccessful high forceps applications and also many unnecessary cesarean sections. During the period from 1925 to 1928 9 158 women were delivered in the Clinic. Of these 774 (8.43 per cent) had a narrow pelvis. Spontaneous delivery occurred in 504 (65.12 per cent) of the cases of narrow pelvis and an abdominal cesarean section was performed in 107 (13.72 per cent). Of 67 661 women delivered in a number of Scandinavian clinics 634 (0.94 per cent) were found to have a narrow pelvis and of the latter 145 (22.89 per cent) were subjected to cesarean section. It is therefore evident that the attitude of the University Obstetrical Clinic in Helsingfors with regard to disproportion as an indication for cesarean section has been more conservative than that of Scandinavian clinics. In the Helsingfors clinic the maternal mortality due to disproportion has been reduced by low cesarean section by one half as compared with the mortality associated with delivery by the natural passages and the fetal mortality has been reduced from 41.86 to 16.1 per cent.

Of the 226 women who survived operation in the cases reviewed by the author 196 (83.6 per cent) were followed up. Of those who had had 1 abdomi-

nal caesarean section 49 per cent became pregnant again whereas of those who had had 2 caesarean sections 5 per cent and of those who had had 3 or more per cent became pregnant again.

Of 86 women who had been delivered by low caesarean section 57 (66.28 per cent) had had another abdominal caesarean section. In 2 (2.33 per cent) of the 86 rupture of the scar occurred and in 3 there was slight thinning of the scar. An analysis of these cases of rupture of the scar and of similar cases reported in the literature led to the conclusion that extramedian scars often heal poorly. Therefore the attempt is now made to make the incision exactly in the midline of the uterus. This detail seems to be of greater importance for good wound healing than was heretofore assumed.

### NEWBORN

Krukenberg H. The Later Fate of Children Delivered by Forceps (Ueb. d. t. Schickl d. d. h. Za. g. bo. rn. n. h. d. e. ) 7 i. M. f. Gy. k. 93 p. 8.

It is very difficult to establish the causal relationship between birth trauma and injury of the child

manifested at a later date. It is known that injury to the infant may occur in an entirely normal delivery.

The author examined the children who had been delivered by forceps in the Gynecological Clinic of Bonn University between 1912 and 1929. In order to have material for comparison 300 children born during the years 1912 to 1914 and 100 children born spontaneously but in asphyxia during the years 1912 to 1928 were re-examined.

The incidence of permanent injuries from forceps was relatively low. In 51 cases of high forceps delivery it amounted to 1.0 per cent; in 144 cases of delivery with forceps according to the Scanzoni method and from the mid-pelvis to 1.4 per cent; and in 739 cases of forceps delivery from the pelvic outlet to 0.13 per cent.

On the basis of our present knowledge the question as to how far birth trauma is related to the cause of death or the later development of the child cannot be definitely answered.

In conclusion the author emphasizes that forceps delivery should be undertaken only on definite indications on the part of the mother or the child.

WILLE (G)

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Le Fur R. Pararenal Tumors (Des tumeurs para-  
rénales) *Bull et mém Soc d chirurgiens de Pa*  
1930 VII 484

Only 122 cases of pararenal tumor have been reported to date. These tumors can be divided into 3 groups (1) tumors of connective tissue origin (2) epithelial tumors and (3) mixed tumors containing epithelial and connective tissue elements. Most frequent are those of connective tissue origin—fibromata, lipomata and myxomata and combinations such as fibrolipomata, myxolipomata and fibromyxomata. While histologically these neoplasms fall into the category of benign tumors they show an almost constant tendency to recur. Of the pararenal sarcomata the mixed forms such as fibrosarcoma and myosarcoma are the most common. The connective tissue tumors originate from either the renal capsule or the neighboring connective tissue.

The epithelial tumors are usually cystic and derived from the wolffian body. The cysts are unilocular and often contain blood. The endothelium like lining distinguishes them from traumatic cysts the walls of which are entirely fibrous. There are certain polycystic tumors analogous to polycystic kidney.

Mixed tumors containing epithelial and connective tissue elements are rare. Hartmann and Lecine have reported a sarcoma containing epithelial tubules. Clinically mixed tumors fall into 2 groups: lipomata of the adipose capsule of the kidney and true pararenal tumors usually fibromata, fibromyxomata and mixed tumors. The former frequently grow rapidly and reach a large size surrounding the kidney. The latter remain pararenal (not perirenal) but may form intimate adhesions with the kidney capsule.

The diagnosis is very difficult. Frequently it can be established only by operation. The mass may present itself as an abdominal or a lumbar tumor depending upon the direction toward which it extends. Ureteral catheterization is of aid because it usually establishes the integrity of the kidney.

Metastases are rare but the growth of the tumors is fatally progressive.

The treatment is always surgical. The route of approach will be lumbar or abdominal depending on the size of the tumor and the direction of its growth. When the tumor is adherent to the kidney the operation should include nephrectomy. Drainage is necessary following the removal of a large tumor it is best established with a Mikulicz drain.

The operative mortality which formerly was 30 per cent (Albarran) has been reduced to about 25 per cent.

Recurrence is extremely frequent even in cases of tumors classified as pure lipomata. Therefore all pararenal tumors should be approached as though they were malignant.

The author reports 3 cases of his own and reviews the histories of 11 others which have been reported since the War.

ALBERT F. DE GROAT, M.D.

Campbell M. F. Perinephritic Abscess. *Surg Gynec & Obst.* 1930 LI 674

In reporting a study of eighty-three cases of perinephritic abscess admitted to Bellevue Hospital, New York, during the last ten years, Campbell states that the condition may simulate clinically a number of other conditions and that in one third of the cases reviewed the correct diagnosis was not made until autopsy was performed. Sixty-seven of the patients were males. The higher incidence of such abscesses in males than in females is probably due to the higher incidence of cutaneous wounds in the male. In the cases reviewed the right and left sides were involved with equal frequency. While extension of the abscess from one side to the other may occur, bilateral involvement is usually the result of blood stream infection. Nearly half of the patients whose cases are reviewed were between twenty and forty years of age. The youngest was a female infant who developed a staphylococcus infection of the thumb when seven days old and died of sepsis on the thirteenth day. Autopsy in the case of this subject revealed bilateral multiple abscesses of the renal cortex and an early perinephritic abscess on one side.

Perinephritic abscesses may be of intrarenal or extrarenal origin. When they are of intrarenal origin there is usually clinical evidence of urinary tract involvement. Those of extrarenal origin are probably the result of infection of the perirenal tissues through the retroperitoneal lymphatics or the blood stream from some distant focus. The author's studies indicate that the majority of perinephritic abscesses are of renal origin.

While most perinephritic abscesses eventually become clinically manifest, the disease sometimes becomes localized and heals by encapsulation.

The perirenal fat is enveloped before and behind by a fascial layer which above is united but below is open and continuous with the loose tissues of the true pelvis. In the infrarenal portion both perirenal and periureteral fat is to be found. Laterally the envelope is closed but medially the layers pass over the great vessels and may fuse with the vessels of the opposite side. Surrounding this fascial sheath is another layer of fat—the pararenal fat—which is thickest posteriorly where it directly overlies the large lumbar vessels. A metastatic abscess formed

here may be clinically indistinguishable from a true perinephritic abscess

A perinephritic abscess which has penetrated the posterior fascial layer enters the pararenal fat usually extends upward and frequently leads to the formation of a subphrenic abscess. In two of the cases reviewed by the author the perinephritic abscess ruptured externally.

In 80 per cent of cases of perinephritic abscess the infection is due to staphylococci. The organisms next most frequently responsible are streptococci, colon bacilli, pneumococci and gonococci. Metastatic perinephritic abscesses may develop during the course of an acute infectious disease such as pneumonia, meningitis, influenza, variola, scarlatina or typhoid. The most common suppurative foci of origin are infected skin lesions, osteomyelitis, respiratory infections and gastro-intestinal lesions.

The most common symptoms of perinephritic abscess are fever, pain, gastro-intestinal disturbances and urinary frequency of sudden onset. The pain is usually localized in the loin, particularly in the costovertebral angle. It may be sharp and stabbing or merely a dull ache. Hematuria and pyuria sometimes occur. In over half of the cases reviewed the duration of the symptoms ranged from three days to three weeks.

There are lesions in which the diagnosis is more difficult. Abdominal rigidity was found in fifty-eight of the cases reviewed and a definite mass was palpated in fifty-nine. Tumefaction is found in at least 75 per cent of all cases and when present is an invaluable sign. Laboratory studies may be of aid especially when urinalysis shows infection and the blood count shows leucocytosis. Leucocytosis is found in the majority of cases. Stereoscopic roentgenography is of special value when it discloses obliteration of the margin of the psoas muscle on the side of the abscess or lateral spinal curvature away from the abscess.

The treatment indicated is liberal incision of all pus pockets and the establishment of drainage.

In fifty-four surgically treated cases the mortality was 20.4 per cent. BENJAMIN F. R. MILLER, M.D.

**Raffo V. The Effect of Denervation of the Renal Peduncle and Ureter in the Production of Dilatation of the Upper Urinary Tract.** (V. I. Illinois Journal of Urology, 1933, 1, 54.)

Following a review of the literature the author gives protocols of experiments he carried out on animals. He found that section of the nerve fibers in the renal plexus running in the peduncle caused changes in the function of the renal pelvis and ureter that were quite marked immediately after the operation but decreased rapidly until they disappeared entirely without leaving any demonstrable dilatation of the upper urinary tract.

Decortication of the vessels of the renal peduncle was followed by dynamic changes which lasted longer

and were more intense than those occurring in the first series of experiments but like the latter did appeared without leaving any dilatation.

Ligating the vessels of the peduncle with isophenyli had only a transitory effect on the peristalsis of the renal pelvis and the ureter.

When both section of the nerve fibers running in the peduncle and perivascular sympathectomy were done changes of a certain degree of severity were brought about in the dynamism of the renal pelvis and ureter but the production of dilatation was exceptional.

Decortication of a circular tract of the ureter did not cause serious changes in the nutrition of the part but produced profound changes in the function of the renal pelvis and ureter with retention and distention of the cavity above the denervated section.

When both decortication of the vessels of the peduncle and circular decortication of a tract of the ureter were done there was rapid abolition of all active movement with retention and dilatation of the upper urinary tract.

From his findings the author concludes that merely functional disturbances of the renal pelvis and ureter without any mechanical cause may produce dilatation or dynamic hydronephrosis.

WALTER G. MORSE, M.D.

**Walters W. Resection of the Renal Pelvis for Hydronephrosis Its Complication and Results.** (S. J. C. & Obit, 1933, 1, 71.)

Walters describes the technique used in successful resections of hydronephrotic renal pelvis and reports on certain postoperative complications which have necessitated secondary nephrectomy.

Resection of the renal pelvis was performed in eleven cases of hydronephrosis. In eight cases (nine resections) the results of the operation were excellent. In four of these cases the hydronephrosis was bilateral and the renal pelvis was large and infected. In one case bilateral resection was done with an interval of three months between the operations. In this case also the result was excellent. Practically ten years have elapsed since the operation and the patient has been completely relieved of all symptoms of renal retention or obstruction. This is probably the first case of successful resection of bilateral infected hydronephrotic kidneys to be reported. In three additional cases of bilateral hydronephrosis successful resection of one hydronephrotic renal pelvis has been performed. Three months elapsed before the other renal pelvis was resected.

Cases of hydronephrosis in which successful results followed division of anomalous blood vessels or connective tissue sheaths are not included in this report.

In one of the cases in which resection of the renal pelvis was performed secondary nephrectomy was necessitated by a persistent urinary fistula from occlusion of the ureter by postoperative infection around the ureter and in two cases it was necessitated by

pyelonephritis with cortical abscesses although urine was being transmitted successfully from the resected renal pelvis to the bladder through the ureter. Complete recovery followed the nephrectomy.

When postoperative stasis occurred in the renal pelvis it was successfully relieved by the introduction through the cystoscope of an indwelling ureteral catheter which was left in place as long as the retention persisted. In spite of leakage of urine from the anastomosis with perirenal accumulation results may be satisfactory provided drainage is sufficient.

Walters draws the following conclusions:

1. Resection of the hydronephrotic renal pelvis is worthy of consideration when there is sufficient normal renal parenchyma and the function and condition of the other kidney are not entirely satisfactory.

2. Bilateral resection of bilateral hydronephrotic kidney may be followed by excellent results.

3. Postoperative complications such as temporary accumulation of urine within the renal pelvis immediately subsequent to operation leakage of urine from the pelvic anastomosis and pyelonephritis may not compromise the end result of resection of the renal pelvis if they are adequately controlled but if they do not yield to treatment nephrectomy may become necessary and should not be long delayed if the opposite kidney is normal.

**Lazarus J A Heminephrectomy for Calculous Pyonephrosis in a Case of Bilateral Duplication of the Ureters and Pelves** *J Urol* 930 xxiv 503

Among the frequent anomalies of the genito urinary tract is the double ureter. When duplication of the ureter and the renal pelvis is found on one side the anomaly may be present also on the other side. The ureters usually empty into the bladder. If they do the upper ureter has the lower meatus.

The incidence of double ureter is believed to be between 3 and 4 per cent. The condition is of interest from the clinical point of view chiefly because pathological changes are especially prone to occur in kidneys with congenital anomalies.

The case of duplication of the ureters reported by the author was that of a man forty years of age who gave a two year history of pain in the left lumbar region and large joints burning on urination and turbidity of the urine.

Cystoscopic examination disclosed four ureteral orifices and pus coming from the upper orifice on the left side. A diagnosis of lower pole infection of the left kidney was made. At operation the lower half of the left kidney including the renal pelvis and a part of the ureter was removed and the bleeding controlled by the use of a muscle tissue. Decapsulation was done. A flap of perirenal fat was loosely stitched over the sutured pole of the kidney and a rubber tube and dam were placed below for drainage.

Convalescence was uneventful and postoperative cystoscopic examination was essentially negative.

In conclusion the author emphasizes that double kidney should be suspected when the pyelogram shows a small bizarre pelvis and that in a large percentage of cases of double kidney complicated by pathological changes in the upper or lower half heminephrectomy is safe.

ELMER HESS M D

**Bowen J A and Bennett G A Squamous Cell Carcinoma of the Kidney Pelvis** *J Urol* 1930 xxiv 495

Squamous cell carcinoma of the renal pelvis is rare. While it is almost symptomless it is highly malignant.

The authors report the case of a man fifty seven years of age who sought treatment for urinary disturbances and for coronary disease associated with subnormal renal radiation down the arms and dyspnea. Roentgen examination of the urinary tract revealed a large coral shaped calculus in the left kidney. After this examination the patient was transferred to the medical service for treatment of the cardiac condition. A month later the left kidney was removed. It weighed 120 gm. Pathological examination disclosed at about the proximal end of the calculus or the end nearest the renal pelvis a thickening of the pelvic mucosa with the formation of a hard gray growth which extended outward along the middle calyx and showed extension into the upper calyx. The rest of the renal pelvis and the calyces were dilated and filled with a thick puriform liquid. On microscopic examination the neoplasm was found to be a squamous cell carcinoma arising in the renal pelvis.

The patient made an uneventful recovery but six months later showed marked cachexia and gave a history of pain in the back and loss of weight and strength for three months. He was then found to be suffering from a generalized metastatic carcinoma secondary to the tumor in the pelvis. The early recurrence in this case supports the conclusions of Scholl and Foulds with regard to the prognosis of squamous cell carcinoma of the kidney.

ELMER HESS M D

## BLADDER URETHRA AND PENIS

**Boeckel A Fourteen Cases of Cancer of the Bladder Treated by Electrocoagulation Directly Through a Suprapubic Incision** (Quatorze cas de cancer de la vessie traités directement à la vessie ouverte) *Bull et Mém Soc d'Chirurgie de Paris* 1930 xxi 507

In the cases of cancer of the bladder reported by the author the diagnosis was confirmed by biopsy. The immediate results of treatment by electrocoagulation were most satisfactory in every instance. However one patient died a month after the operation, one died of apoplexy after thirteen months and one died of cachexia after eighteen months.

Eight patients are now in excellent health from one year to three years after the treatment. They

have been subjected to repeated cystoscopic examinations. In two minute tumors were discovered in the course of these examinations but were promptly coagulated cystoscopically and have not recurred. Two of the patients were treated too recently to warrant conclusions as to the end results. One patient cannot be traced.

If electrocoagulation had not been employed some of the patients would have required total cystectomy to eradicate the disease in operation with an immediate mortality of 5 per cent and a mortality within the first year of 30 per cent.

In the discussion of this report LAVENANT called attention to the general ineffectiveness of X-ray and radium therapy and the high mortality not only of total but also of partial cystectomy. He stated that it is not necessary to open the bladder routinely for the application of electrocoagulation when accessible the tumor can be treated as effectively through the cystoscope. Opinions differ as to whether this form of treatment is palliative or curative. In some cases however it is followed by apparent cure for as long as five years. Cures do not seem to depend on the type of the tumor as they have been obtained even in cases of tumors which are of the most malignant type.

LEUR expressed the opinion that the larger tumors should always be treated by opening the bladder because here currents must be employed and hence on account of the extensive sloughs drainage of the bladder is necessary.

A L T I D E G O U T M D

Goldstein A E and Abeshouse B S. Post-operative Urinary Incontinence. A Review of the Literature and Report of Cases. *Ann Surg* 93 9

Incontinence of urine is more common following prostatectomy than is suggested by reports in the literature and is more frequent after the perineal operation than after the suprapubic operation.

In true or complete incontinence there is urinary dribbling at all times. In partial incontinence dribbling occurs on exertion between urinations or at the end of urination. Incontinence may be temporary or permanent and may vary in degree from time to time. Temporary incontinence lasting several days or weeks is rather frequent after prostatectomy but responds well to treatment. In the first few days of convalescence the patient should be instructed to start and stop the stream several times during the act of urination and to void at frequent intervals in order to improve the tone of the vesical sphincters. Permanent incontinence is associated with some anatomic or mechanical defect involving both sphincters and is the result of operative manipulation. Incontinence may be diurnal or nocturnal. Diurnal incontinence is usually partial and temporary and is manifested when the patient gets up. It responds well to the apy.

Goldstein and Abeshouse review the anatomy and nerve supply of the bladder and its sphincters. They

state that it can be said with some degree of certainty that the spinal cord center for micturition is in the lower part of the cord (lumbosacral region) and more or less localized to separate segmental areas: the center for the bladder filling mechanism which controls the sphincter area being in the twelfth thoracic and first lumbar segments and the center for the emptying mechanism of the bladder which controls the detrusor muscle being in the second, third and fourth sacral segments. The spinal path for motor impulses from the brain to the bladder is believed to be in the posterior part of the pyramidal tract of the lateral column.

The bladder like the anus and uterus has a combined voluntary and involuntary mechanism. In the bladder this mechanism is called the detrusor mechanism and is made up of a filling and emptying system. Both the filling and emptying mechanism consist of an inhibiting (relaxing) and an excitator (contracting) element which are correlated. The bladder like other viscera has a double innervation wherein impulses transmitted through a parasympathetic system are antagonistic to those transmitted through a sympathetic system. The filling mechanism is entirely involuntary. The emptying mechanism is partly involuntary and partly voluntary.

The normal voiding reflex is initiated by a sensation of fullness which stimulates the sensory nerves of the bladder. The amount of urine necessary to induce the desire to void is not constant but varies greatly in the same person and in different persons. The determining factor is the intravesical pressure rather than the volume of urine in the bladder. The threshold of intravesical pressure is dependent upon the degree of irritability of the bladder wall. Micturition ensues only when the sustained contraction of the bladder wall has resulted in a certain degree of intravesical tension.

The findings of investigations seem to show that normal bladder closure is maintained by the internal vesical sphincter. That when the internal sphincter is rendered functionless by operative intervention or long continued dilatation and stretching by intravesical enlargement of the prostate the external sphincter is capable of maintaining bladder closure and that when either the internal or external sphincter is rendered functionless normal urination and bladder closure can be obtained if the remaining sphincter is normal.

A disturbance of urination such as retent or incontinence occurring after suprapubic prostatectomy is practically always due to permanent injury to the external sphincter or to a mechanical factor interfering with the function of the external or internal sphincter such as a loose fragment of prostatic urethral or bladder tissue producing a ball valve obstruction or narrowing of the lumen of the vesicoprostatic orifice produced by stricture bar or canopy formation. However the occurrence of such unfavorable structural defects within the enucleation cavity has been greatly reduced by

recent advances in the technique of the suprapubic operation whereby the uncertainty of blind enucleation with the finger has been replaced by accurate dissection in a clearly visualized operative field. Hemorrhage at the time of operation has been controlled more completely by ligation of bleeding vessels and by suturing the torn prostatic capsule and vesical wall than by trusting to the uncertainty of gauze packs.

When incontinence follows a perineal operation it is always associated with an injury to the sphincteric musculature about the vesical neck and posterior urethra. Such a complication should not occur as frequently as it does as the perineal removal of an enlarged prostate is essentially an extra urethral and extravescical operation wherein the hypertrophied mass is shelled out of its capsule both vesical sphincters being left intact.

The usual operative defect associated with incontinence is a wide dilatation of both internal and external sphincters accompanied by dilatation of the membranous and posterior urethra. The muscular components of the internal and external sphincter are replaced by scar tissue. In the region of the internal sphincter the usual prominence of the median portion is absent because of replacement of the injured muscles by scar tissue.

JACOB S GROVE M D

Susman M P. Paget's Disease of the Glans Penis.  
*J College Surg Assoc* 1930 111: 282

The author reports a case which was diagnosed clinically as Paget's disease of the glans penis. Biopsy was not obtainable.

To date thirty-five cases of extramammary Paget's disease have been reported in the literature. In about half of them the disease affected the genitals.

The nature of the condition is not known with certainty, but in a case previously reported by the author the similarity of the lesion to basal cell carcinoma was very striking.

The case reported in this article was that of a man fifty-six years of age who presented on the glans penis several well-defined areas with a red raw and glazed appearance which had been present for six years. The lesions resisted all forms of treatment including radium irradiation. There was no sign of cancer in the body of the penis.

HENRY L SANFORD M D

## GENITAL ORGANS

Bledsall J C. Torsion of the Testicle. *P n* 131.  
*ana* 11 J 193 xxxiv 159

Torsion of the spermatic cord occludes the veins but does not completely occlude the arteries. Below the twist hemorrhagic infarction occurs.

The mechanism of torsion of the testicle is of two types—the extravaginal and the intravaginal. In the extravaginal type the entire testicular mass rotates so that the cord is twisted in its extravaginal

portion. This is likely to be brought about by sudden dislocation of an undescended testicle, the cause being the force producing the dislocation or a sudden contraction of the cremaster. The intravaginal type depends upon a long and mobile or very narrow mesorchium.

In practically all cases a congenital malformation has been found—either imperfect descent or misplacement of the testicle or an abnormal mesorchium. The chief factors predisposing to torsion of the testicle are trauma and an abnormally long or narrow mesorchium. Torsion of the testicle has been known to occur four hours after birth. It may occur at any age. The exciting cause is usually muscular effort or strain.

The symptoms of torsion of the testicle are of extremely sudden onset. A severe sickening pain is followed by rapid swelling of the scrotum and usually by prostration. Torsion of a right intra-abdominal testicle may simulate an attack of appendicitis. Torsion of a testicle in the scrotum may be difficult to differentiate from acute epididymo-orchitis. Torsion of an inguinal testicle is frequently confused with strangulated hernia.

The treatment of torsion of the testicle is orchidectomy. Detorsion may be done when an early diagnosis is made, but may be followed by suppuration or atrophy. Torsion of the other testicle may be prevented by everting the sac and suturing the testis to the scrotum.

The author reports four cases.

ANDREW McNALLY M D

## MISCELLANEOUS

Swick M. Intravenous Urography by Means of the Sodium Salt of 5 Iodo-2 Pyridon N Acetic Acid. *J* 1: 114 193 xc 1403

Jacobs L. Intravenous Urography (Swick Method). *J Am M Soc* 193 xcv 1409

Swick reviews the history of the intravenous use of 5 iodo-2 pyridon N acetate of sodium as a medium for urography. When administered intravenously this drug is excreted in the urine with no change in its chemical formula.

The dose for adults is 40 gm. of the drug dissolved in a sufficient quantity of doubly distilled water to make approximately 100 cc. This solution is filtered and then sterilized in a water bath for half an hour or in the autoclave at a pressure of 15 lb. for twenty-five minutes. After complete sterilization the solution is injected intravenously with the use of syringes and needles sterilized in distilled water.

The injection is done in two or three stages at intervals of from three to five minutes. The first roentgenogram is usually taken from fifteen to twenty minutes after the last injection. The time at which subsequent roentgenograms are made depends upon the amount of secretion that is visualized in the first roentgenogram. As a rule the subsequent roentgenograms are made at intervals of twenty-five minutes, but when functional disturbances are present



ent they are made at intervals of from one to three hours. The clarity of the roentgenograms is improved by compress on obtained by the application of an air inflated balloon over the lower abdomen for from five to ten minutes prior to and during the exposure.

Dosages as low as 20 gm. and as high as 60 gm. have been employed. For children the dosage of a 40 per cent solution is as follows: thirteen years of age from 25 to 30 gm., nine years and up 25 gm., six years and up 20 gm., four years and up 16 gm., two years 14 gm., and six months from 10 to 12 gm.

During the injection the patient experiences thirst and generalized warmth involving particularly the face and the region of the bladder. In some cases there may be nausea or vomiting and occasionally there is pain along the course of the vein injected. Parenchymous infiltration causes pain but no necrosis.

Intravenous urography is of great aid in cases in which instrumentation is contraindicated. It is of assistance especially in the diagnosis of conditions of the urinary tract in children and in follow up studies in cases in which ureteral transplantation has been done.

In cases of uræmia the method is contraindicated. Therefore its use should be preceded by a determination of the blood urea. The drug does not seem to have any deleterious effect on pulmonary tuberculosis.

For pyeloscopy the method is feasible only when the density of the excreted substance is sufficiently great. When function is poor the results of pyeloscopy will be correspondingly poor.

The author emphasizes that intravenous urography with uroselectan does not replace cystoscopy and retrograde pyelography. Absence of the opaque medium in the urinary tract may be due to a temporary decrease of renal function not dependent upon a pathological condition. It is therefore advisable to check the findings of urography by cystoscopy, a study of the blood chemistry and dye excretion tests.

JACQUES describes the method used by SWICK. He states that the patient should be kept on the table for at least an hour after the injections and adopts compression during the exposures. As a rule the best roentgen results are obtained fifteen, thirty, five and sixty minutes after the last injection. After sixty minutes good outlines are obtained only in cases of delayed renal function with obstruction. Therefore it is important to have each film developed immediately in order to determine how long the taking of roentgenograms should be continued. In some cases the lower ends of the ureters may be visualized better by having the patient empty the bladder.

The use of uroelectan should be preceded by a study of the blood chemistry and indigo carmine and phenolsulphthalein tests. Intravenous urography does not eliminate the retrograde or cystoscopic method of pyelography. This is true particularly in cases of impaired renal function.

The advantages of the method described are that it intensifies the kidney shadows, renders instrumentation unnecessary, shows the entire urinary tract including the bladder at one time, discloses anomalies of the urinary tract such as double ureter that may not be shown by the cystoscopic method, is not rendered unsuccessful by stricture of the ureter, eliminates artefacts and shows not only the anatomy of the urinary tract but also its function.

In conclusion the author emphasizes that mere non visualization at a given examination does not necessarily denote permanent renal damage.

J. SYDNEY KUTZMAN, M.D.

#### KUTZMANN, A. A. A New Urographic Medium Emulsified Camptodol. *Am J Surg* 93 320

Camptodol is an approximately 44 per cent mixture of elemental iodine with rapeseed oil. When used for urography it is diluted with distilled water and acacia so that the percentage of iodine is equivalent to that of the sodium iodide solution used for roentgenography. The emulsion is miscible with water, non-toxic, non-irritating and inert. In Kutzmann's opinion it is an excellent medium for urographic study.

J. SYDNEY KUTZMAN, M.D.

#### RINALDI, R. Functional Hematuria (La questione di ematuria funzionale). *Arch Ital Urol* 1930 vi 624

The author discusses the various classifications of hematuria and reports two cases.

His first case was that of a woman twenty-two years of age who had been passing blood stained urine for three months. There were no other symptoms. Rest in bed seemed to increase the bleeding. The patient was growing pale and losing strength. She said that she had contracted syphilis about a year previously and had been treated by subcutaneous injections for about six months. Her Wassermann reaction was 4+ and she had a strongly positive tuberculin reaction. There were no gonococci or tubercle bacilli in the urine and inoculation of urine into guinea pigs was negative.

Symptomatic treatment with calcium and various coagulants had no effect whatever but following an intravenous injection of arsenobenzol the hematuria stopped within twenty-four hours. It did not recur during arsenobenzol treatment. The patient gained weight and was discharged with a diagnosis of hematuria from syphilis. About a year later she reported that the hematuria had recurred and she had been subjected to nephrectomy on the basis of a diagnosis of tuberculosis of the kidney. Histological examination confirmed the diagnosis. Since the operation she had been free from hematuria.

The second case was that of a man thirty-seven years of age who had always been well until about two months before his admission to the hospital when he began to have attacks of colicky pain chiefly on the left side. The pain was almost un-

endurable and was very little affected by sedatives. Examination of the urine showed only traces of albumin and nothing else pathological. A diagnosis of renal neuralgia was made and denervation and decapsulation were performed on the left kidney.

The patient was discharged at the end of two weeks apparently cured but within a month the pain recurred. It was then more severe than before and associated with paroxysmal hæmaturia. Cystoscopic examination showed that the blood came from the right kidney. Bacteriological examination of the urine was negative. During the attacks of pain there was a transitory erythema of the trunk and for a short time there was an urticarioid eruption. The findings of examination of the blood were normal. The bleeding and coagulation times were normal and the Wassermann reaction was negative.

A probable diagnosis of tumor of the right kidney was made and nephrectomy was done. The kidney was small and fixed by numerous adhesions. The patient died in collapse on the tenth day.

Histological examination showed no signs of tumor and no inflammation but revealed enormous dilatation of the peritubular capillaries and intra glomerular hæmorrhage. There was blood pigment in the vessels and in the connective tissue which in places had undergone sclerosis.

The sudden beginning of the disease its paroxysmal course the hæmaturia and the terminal collapse suggested anaphylaxis but no cause for anaphylaxis could be found. There was some intestinal disturbance but it was not enough to cause digestive anaphylaxis. The author concludes that the condition was probably Frank's anaphylactoid purpura.

AUDREY G. MORGAN, M.D.

# SURGERY OF THE BONES, JOINTS, MUSCLES TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

Genner V and Boas H A Case of Generalized  
Osteitis Deformans (Paget) with Secondary  
Malignant Degeneration *Acta ad l* 93  
398

Following a brief description of the clinical characteristics of osteitis deformans based on the first case reported by Paget the authors review the complications and the pathologico-anatomical and roentgenological changes associated with the disease the various theories as to its etiology and the difficulties in its diagnosis from other affections of the bones notably Recklinghausen's osteitis fibrosa and certain bone tumors

They then report a typical case Their patient as a man fifty one years of age whose condition was of about thirty years standing Its course had not been attended with any disturbance of the general health or with the patient's fitness for work It was discovered only when the patient as admitted to the hospital to be treated for a swelling of the right shoulder the result of an injury sustained a few weeks previously Roentgen examination showed that the swelling was due to a malignant neoplasm in the osseous tissue and that the patient as suffering from a generalized form of osteitis deformans (Paget) with typical deformity of certain bones especially those of the lower extremities (saber legs) Death occurred a few weeks later from metastases

Autopsy confirmed the clinical and roentgenological diagnoses It revealed extensive sarcomatous destruction of the right scapula and clavicle and partial destruction of the head of the humerus by large hemorrhagic tumor masses

The patient also suffered from syphilis acquired when he was eighteen years old This condition had been poorly treated the Wassermann reaction remained strongly positive

Another feature of the case was very pronounced deafness during the last few months of the patient's life evidently the result of the otosclerotic processes characteristic of the osteitis

Franceschini P and Migliuolo A The Structure  
and Growth of the Joint Bodies (Sopra lo  
struttura e lo sviluppo delle articolazioni  
libere) *Atti d* 93 89

The authors review the literature on free joint bodies and report a case of free body in the knee In the case reported the joint body appeared four years after a fall on the knee At first it was the size of a grain of corn but when it was removed thirteen years later it was found to measure 75 by

4 by 13 mm The patient recovered from the operation for its removal without complications and at the end of a month was able to resume military service Seven months after the operation on the knee was of normal appearance and there was no trace of exuberant or periarticular infiltration

Histological examination of the cartilage revealed proliferative phenomena which had led to the formation of a large amount of fibrocartilage This finding supports the view that the synovial possesses trophic properties The authors believe that the onset of the production of fibrocartilage is due to a peculiar development of the elements of the endosteum of the medullary spaces or the constituents of the bone marrow MARTI J Di COLA MD

Middleton D S The Pathology of Congenital  
Torticollis *Br J Surg* 1930 1 88

After a clinical and pathological study of ninety cases of so called congenital torticollis Middleton records findings which support the mechanical theory of the formation of that deformity and refute the older theories namely the congenital hereditary birth injury infective myositis and nervous theories

The ischaemic theory first suggested by Mikulicz was later supported by Nov Joserand and Vianay who investigated the circulatory system of the sternomastoid muscle and showed the possibility of interference with its blood supply during delivery It is the venous obstruction which causes the true hemorrhagic infarct described by Kempf and Brooks and gives rise to the sternomastoid tumor Middleton claims that this pathological formation is primary in all cases of congenital torticollis He believes that during delivery there may be sufficiently prolonged venous obstruction in the sternomastoid muscle to cause fibrosis Records show that congenital torticollis occurs most frequently in first born children and those delivered after a long hard labor

Pathological changes in the skeleton due to the influence of congenital torticollis such as osteosclerosis of the clavicle shortening of the face on the side of the affected muscle and a tendency of the osseous tissue to grow or lean to the affected side are discussed CARCVALLO B TEMAN MD

Hellis S A Dupuytren's Disease (Zur Klinik der  
Dupuytren'schen Kontraktur) *Med Abh* 93 1 309

Scapulohumeral periarthritis is characterized by (1) limitation of abduction and backward movement of the arm (2) a point of tenderness to pressure corresponding to the position of the subdeltoid or subacromial bursa (3) an inconstant roentgen shadow usually in the region of the greater tuberosity

of the humerus due to the deposition of calcium salts in the bursa and (4) fever and swelling in the early stages and atrophy of the deltoid muscle later.

The exciting causes of the condition are infection and abnormal demands on the joint.

In the acute stage the treatment should consist of the administration of salicylates and wrapping of the joint in cotton dressings. After subsidence of the pain active and passive movements, the application of heat diathermy and non specific protein therapy are indicated.

Of twenty four patients whose cases are reviewed by the author twenty two were cured and two left the hospital before completion of the treatment.

R. GUTZKE (Z)

**Seifert E. Painful Stiffening of the Shoulder. Humeroscapular Periarthritis (Ueber die schmerzhaften Schulterversteifung Periarthritis humeroscapularis) 1930 Leipzig Kabitzech**

Seifert discusses painful stiffening of the shoulder the primary cause of which is not in the humeroscapular joint. He first calls attention to the fact that the mechanism of motion includes not only the humeroscapular acromioclavicular and sterno-clavicular joints but also the bursal mechanism of two pseudojoints called by Fick, muscle joints. One of the latter facilitates movement between the chest wall and the anterior surface of the shoulder blade which is covered by the subscapularis muscle. The other is formed by the external surface of the capsule of the humeroscapular joint, the undersurface of the deltoid muscle and a part of the pectoralis major muscle. Passing over this periarthral bursal structure are the axillary nerve and the posterior circumflex humeral artery. Therefore in this region frequently to be found the original site and the cause of painful stiffening of the shoulder. When traumatic and infectious conditions of the humeroscapular joint can be definitely excluded the conditions remaining to be ruled out are acromioclavicular arthritis humeroscapular periarthritis in the restricted sense of the term and subdeltoid subacromial and calcareous bursitis.

Acromioclavicular arthritis is characterized by a sharply delimited area of tenderness to pressure at the site of the articular space and by pain radiating to the shoulder on movement. Chronic arthritis shows typical bone changes in the roentgenogram. When the diagnosis remains doubtful an injection of novocain into the joint cavity will clear it up.

Acute inflammatory conditions demand immobilization and perhaps therapeutic injections of novocain. In chronic arthritis resection and the interposition of fat or fascia may be considered. Seifert has seen good results from treatment with sulfogel.

Humeroscapular periarthritis was first described by Duplay in 187 and its syndrome has become generally recognized. It runs its course chiefly in the described muscle joint which forms the subdeltoid bursa. Even a slight disturbance of this bursal mechanism must result in noteworthy disturbances

in the movements of the shoulder blade. Hamatoma later adhesions and the formation of cicatricial tissue may lead to connective tissue ankylosis. The disturbances often develop relatively late after an apparently harmless contusion of the shoulder. As a rule the physician believes that the cause is in the shoulder joint as the differences between the soft friction rub of the capsule and the harsh bony scraping sound of arthritis are not generally known. Over exertion and awkward movements with tearing of the capsule or the muscular attachment may have exactly the same results. In one third of the cases seen at the Heidelberg Clinic a history of trauma was lacking.

Adduction is the movement most markedly limited and forward movement of the arm is least affected. Contraction of the muscles may cause abnormal elevation of the head of the humerus and in rare instances may result in luxation of the head upward and backward.

In early cases immobilization in adduction is indicated as there is great danger of adduction contracture. The older the patient the earlier careful movement and massage may be begun.

In discussing subdeltoid bursitis Seifert says that anatomists do not yet know exactly the tissues of origin, development sites or number of the subdeltoid bursae or their relation to each other or to the shoulder joint. Trauma and infection may result in inflammation of such bursae. Immobilization, the application of heat and the administration of salicylates bring about relief of the symptoms in the course of three or four weeks. With regard to calcareous bursitis Seifert says that calcareous deposits in the periarthral tissues have no connection with the bursae. Even operative exposure and histological study often show no connection. Very frequently such deposits are bilateral but cause symptoms on only one side. This is difficult to understand if it is assumed that frictionless functioning of the bursal surfaces is necessary for unhindered motion. If conservative measures do not bring relief operation is to be considered.

I. LENZ (Z)

**Rendu. Obstetrical Paralysis of the Upper Extremity (Paralyse obstetricale du membre supérieur) Rev d'orthop 1930 xxx ii 439**

Obstetrical paralysis of the arm occurs about once in 2,000 births. Its most frequent causes are prolonged labor or dystocia demanding the use of forceps and abnormal presentations necessitating manipulation.

The condition is generally recognized at birth. A certain laxity of the shoulder is noticed and the arm hangs limp at the side of the trunk in internal rotation with the elbow extended and frequently with the fingers flexed. There are no skeletal abnormalities. The X-ray findings are negative. Electrical examination is very difficult and unsatisfactory.

The following clinical varieties are distinguished: 1. Superior root paralysis of the Duchenne Erb type. This is the most common variety.

- 2 Total paralysis This is very rare
- 3 Inferior root paralysis of the Klumpke type
- 4 Atypical forms—mixtures of forms As a rule these have a good prognosis
- 5 Forms associated with abnormal embryological development

The author explains the deformities and describes the vicious attitudes functional and trophic disturbances and electrical reactions which follow these types of paralysis He emphasizes that in the roentgen examination it is necessary to roentgenograph both shoulders in the same position for comparison

The pathological changes associated with obstetrical paralysis vary from bloody infiltration with oedema to nerve stretching lengthening or rupture In some cases the cerebrospinal fluid contains blood The changes in the skin cellular tissues aponeuroses muscles and tendons are secondary In rare cases there are changes in the bones of the arm with subluxation epiphyseal separation and interference with growth

The author reviews the theories regarding the causes of the nerve lesions

In the diagnosis it is necessary to differentiate pseudoparalysis true paralysis due to other than obstetrical causes and the complications found in the late cases with contractures and secondary deformities

The treatment must be directed toward care of the nerve lesions and the prevention of deformities The author questions the value of early operative treatment of the nerve lesions For the prevention of deformities he advises the use of a celluloid and plaster corset or metal splint to hold the arm abducted and externally rotated In the surgical treatment Platt's and Sever's operations have proved acceptable In some cases tendon transplantation has been done

KELLOGG SPEED MD

Blatne E S Spondylitis Traumatica Tarda (Kuemmell's Disease) *R d logy* 193 351

Spondylitis traumatica tarda was first described by Kuemmel in 1891 It may result from a comparatively slight injury not calling for medical attention The pain following the injury subsides only to recur months or years later A ray examination discloses a partially collapsed vertebra which is decreased in size and usually tapers anteriorly The shrinkage is probably due to a disturbance of the nutrition of the vertebral body resulting in the slow absorption of bone

The lesion is frequently discovered accidentally Its demonstration requires a lateral roentgenogram

The disability is usually between 10 and 15 per cent The prognosis is good although the symptoms are of long duration

The pain and bony destruction are much less than in tuberculous spondylitis and there is only a slight if any gibbus Compression fractures can be ruled out by a roentgenogram taken immediately after the injury The author reports ten cases

MAURICE L DALE MD

Roederer G The Pathogenesis of the Kuemmel Verneuil Syndrome (A propos d'un cas de syndrome de Kuemmel Verneuil) *Bull et mém Soc d'ch g n d P* 1930 x 1 527

The Kuemmel Verneuil syndrome was known long before it was described by either Kuemmel or Verneuil In France it was studied by Bonnet in 1857 and by Sarrazin in 1859 In 1881 Schede called attention to softening of the vertebrae secondary to trauma However Kuemmel was the first definitely to distinguish the three stages of the syndrome Of the various terms which have been applied to the condition traumatic spondylitis is probably the most appropriate

The course of the condition is very characteristic An injury to the back often quite insignificant follows it for a time by local pain and occasionally by slight bladder disturbances Apparent recovery then results but after from two to six months the pain recurs in the form of localized pain girdle pain and pain radiating along the nerves originating in the affected segments which become increasingly more severe and a rigid kyphosis or gibbus appears

As an injury to the back may be followed by numerous other spinal affections with a similar history the diagnosis must be made with caution For the diagnosis of Kuemmel Verneuil syndrome three factors are necessary trauma a typical history and a characteristic roentgenogram The roentgenogram must show a wedge shaped deformity of two vertebrae However the only absolute roentgen criteria are a negative roentgenogram at the time of the injury and a positive roentgenogram in the third stage of the condition In only a few cases on record have these criteria been available

There are two explanations of the syndrome According to one the condition is the result of unrecognized fractures According to the other there is a secondary flattening of the vertebrae It is well known that even severe vertebral fractures may be unrecognized and cause delayed symptoms Roederer reports two cases of vertebral fractures that were at first not recognized and state that undoubtedly a certain percentage of cases in which a diagnosis of Kuemmel Verneuil syndrome is made belong to this group From observations made on the extremities it is known that osteoporosis may follow traumatism The resorption of bone probably follows the prolonged hyperæmia The fact that in many cases presenting the Kuemmel Verneuil syndrome a considerable portion of the spine is involved shows that the initial lesion is not a fracture Maie attributes the deformity to the tearing of the anterior vertebral ligament with subsequent retraction Cases have been reported which showed roentgenographic signs favoring this view

It is sometimes impossible to be sure that the osteoporosis is not caused by tuberculosis following the injury The author has obtained cures without being able to determine whether the condition was the Kuemmel Verneuil syndrome or tuberculosis Congenital anomalies may also cause confusion

Roederer concludes that there is more than one valid explanation for the pathogenesis of traumatic spondylosis. He reports two cases of the condition supplementing his report with roentgenograms.

ALBERT F. DE GROAT M.D.

**Perrotti G. Remote Results of the Suboccipital Injection of Lipiodol in Pott's Disease with Paraplegia** (*Su li esiti lontani dell'iniezione sottoccipitale di lipiodol nel morbo di Pott con paraplegia*) *Ann. Ital. di chir.* 1930 15 9 6

The case reported was that of a man thirty-two years old. Six years after the suboccipital injection of lipiodol the patient presented a syndrome of medullary compression and the lipiodol was found to be still present at the former site of the Pott's disease. There was no sign of recurrence of the disease. The vertebrae previously involved had become transformed into a hypercalcified osseous column. As the lipiodol had not become absorbed in six years the author believes it will probably not be absorbed.

MARTIN J. DI COLA M.D.

**Rocher H. L. and Roudil G. Functional Disturbances of the Hip and Sacro Iliac Joint** (*Coryopathie et sacrocoelopathie pathologique*) *Bordeaux chir.* 1930 No 3 217

The neurologist, psychiatrist and orthopedist often have occasion to collaborate. As Charcot said hysterical arthropathies may so closely simulate organic arthropathies that the diagnosis is sometimes very difficult. The authors report seven cases of functional arthropathy. The patients were six females and one male ranging in age from thirteen to thirty years and giving a history of trauma. When careful physical examination and roentgen ray studies revealed no pathological changes treatment by suggestion, Swedish massage and exercise was given. All of the patients made a perfect recovery.

Arthropathy is often the first manifestation of hysteria. Functional arthropathy usually follows a slight trauma associated with emotional shock. According to Hartenbergh the basis of the hysterical personality is excessive imagination. In most cases of functional arthropathy there is an interval of contemplation and autosuggestion between the occurrence of the trauma and the appearance of the symptoms.

Functional arthropathy is characterized by pain, contracture and poor posture. Sometimes it is accompanied by sensory disturbances. As a rule the pain is localized on the side of the involved limb at the site where the subject thinks he was injured. The contracture is very variable in its intensity and location. Extension of the contracture is an important indication of the functional nature of the condition. The abnormality of posture is almost always a position of adduction. The lameness is due to the deformity and the pain.

In the diagnosis care must be taken to rule out organic changes and attention paid to hysterical manifestations. The diagnosis is particularly diffi-

cult when hysteria is associated with organic defects.

In the treatment it is necessary to combine psychotherapy with physical therapy.

JACOB E. KLEIN M.D.

**Henderson M. S. Injuries to the Semilunar Cartilages of the Knee Joint** *Surg. Gynec. & Obst.* 1930 11 720

The anatomical structure of the knee joint is of a more or less composite character although chiefly of the hinge type. During action there is a constant change of surface contact for weight bearing between the femur and the tibia which is not seen in true hinge joints such as the elbow and the ankle. The most common cause of derangements of the knee is injury to a semilunar cartilage. The internal semilunar cartilage is injured more frequently than the external because if it is caught between the internal condyle of the femur and the head of the tibia and the act of extension is continued it cannot slip out of the vise like hold, being firmly anchored at its periphery to the internal lateral ligament.

Henderson divides the lesions caused by injury to the internal semilunar cartilage into 4 main types:

1. A tag like flap of varying size which is split off from the anterior portion and hangs free with its base attached to the posterior mesial portion of the anterior third.

2. A pedunculated flap of the same type in the middle third of the cartilage which is sometimes doubled back on itself and pointed posteriorly. This is a difficult type to see at operation and may be readily missed. Such a flap may be worn into an ear shaped tag attached by a rather small short pedicle. Its incarceration causes sharp severe pain but is usually released readily by a vigorous kick or two and is not followed by swelling or disability.

3. The bucket handle or loop type of lesion. This causes the most constant symptoms and as a rule is readily diagnosed.

4. A pedunculated flap in the posterior third of the cartilage. This often gives rise to bizarre symptoms. As it is generally impossible to see such a flap through an anterior incision the lesion is not discovered until the cartilage is removed or a posterolateral incision is made to explore the posterior portion of the cartilage.

In order to correlate the experience of a number of years the author reviewed 256 cases in which 261 cartilages were removed at the Mayo Clinic. In many cases the patient was seen again a considerable time after the operation the outcome being definitely ascertained. In others the end results were determined by correspondence with the family physician or the patient. The results in 38 cases are known.

The symptoms were chiefly subjective therefore in industrial compensation cases one must be on one's guard. The patient's account of the happenings at the time of the injury is often vague either because of the rapidity with which the various events



In articular tuberculosis resection of the joint was absolutely avoided when the patient was a child. In the cases of adults it was done as the procedure of choice in the treatment of the knee and elbow next most frequently in the foot less frequently in the shoulder and wrist and still less frequently in the hip.

In all 628 patients were treated. Of the cases of tuberculosis of the spine the condition had been present longer than three years in 30 per cent. Of the 16 patients with tuberculosis of the spine 91 were treated conservatively and 35 surgically. Thirty six per cent were cured, 14 per cent (total 50 per cent) were benefited, 17 per cent were not benefited and 33 per cent died subsequently. The results were less favorable than those of surgeons working under more satisfactory conditions (Kisch-Garre). In the cases in which the condition had been present longer than six years a cure was obtained in barely 25 per cent and the subsequent mortality was more than 40 per cent.

It is noteworthy that the mortality was highest (40 per cent) between the tenth and fifteenth years of life, decreased considerably after the fifteenth year and then gradually increased again. The results were best in cases of tuberculosis of the lumbar portion of the spine, next best in those of involvement of the cervical portion, third best in those of involvement of the sacral portion and least favorable in those of involvement of the thoracic portion. Of the patients with involvement of the lumbar spine 46 per cent were cured, 15 per cent were benefited, 8 per cent were not benefited and 81 per cent died subsequently. Of those with involvement of the cervical spine 40 per cent were cured, 40 per cent were benefited, none was unbenefited and 20 per cent died. Of those with involvement of the sacral portion of the spine none was cured, 50 per cent were benefited, 50 per cent were not benefited and none died. Of those with involvement of the thoracic portion of the spine 33 per cent were cured, 7 per cent were benefited, 24 per cent were not benefited and 36 per cent died.

Of the patients with suppurative 13 per cent were cured, 13 per cent were benefited and 18 per cent were not benefited.

Of all operative procedures the original operation of Albee was preferred. When this operation was performed a cure was obtained in 56 per cent of the cases and the subsequent mortality was 31 per cent. The Albee operation is indicated for adults who show no acute symptoms. In such patients the presence of an abscess is not a contra indication. Of the Polish surgeons Schramm, Ostrowski, Wierzejewski, Jurasz and others favor this operation but at the Cracow Clinic it is not regarded very highly.

In tuberculosis of the hip joint the results of early and late resection as well as those of conservative treatment were poorer than in tuberculosis of other joints. The conservative orthopedic treatment gives relatively the best results and is therefore used in most cases at the Lwów Clinic. The number of

cases of this condition which are reviewed was 75. Fifty eight were treated conservatively and 17 were treated surgically. Of the patients who were treated conservatively 41 per cent were cured, 21 per cent were benefited, 15 per cent were not benefited and 23 per cent died. Those who were regarded as completely cured did not always remain free from sequelae. In the group of fatal cases death usually occurred before the third year of observation. The average duration of the treatment was two years. Of the patients with suppuration 36 per cent were cured, 21 per cent were benefited, 7 per cent were not benefited and 36 per cent died.

In the surgically treated cases resection of the joint was done only 5 times and its results appeared to be unsatisfactory. Twenty per cent of the patients were cured and 20 per cent were benefited but 40 per cent died subsequently. Only severe cases were operated upon. Arthrodesis was done 4 times. Observations on the results of this operation are still incomplete but from those so far made it appears that this procedure may be used more often than heretofore.

Of 74 cases of tuberculosis of the knee joint 24 per cent were treated surgically. Of the patients who were cured 48 per cent were treated conservatively and 55.5 per cent were treated surgically (resection). Of those who were benefited 28 per cent were treated conservatively and 18.5 per cent surgically. Of those who were not benefited 18 per cent were treated conservatively and 18.5 per cent surgically. Of those who died subsequently 6 per cent were treated conservatively and 7.5 per cent surgically. The operative treatment averaged four months. It was noteworthy that of the patients who reported their condition as being entirely satisfactory after the treatment 35 per cent had been treated conservatively and 60 per cent had been treated surgically. In the case of the knee resection was the procedure of choice. The late results and function after this procedure appeared to be very good.

Of 104 cases of tuberculosis of the ankle 35 per cent were treated surgically and 65 per cent conservatively. Of the patients treated conservatively 42 per cent were cured, 32 per cent were benefited, 9 per cent were not benefited and 17 per cent died. The operation of choice was enucleation and atypical resection. The os talus which was most frequently the source of the joint infection was almost always removed. Enucleation of this bone was avoided even in the cases of children because of its poor results.

The cases of tuberculosis of the shoulder and wrist are excluded from this report because of the lack of a sufficient number of replies to the follow up questionnaire.

Of the cases of tuberculosis of the elbow resection was done in 30 per cent. Of the patients who were cured 42 per cent were treated conservatively and 70 per cent by resection. Of those who were benefited 21 per cent were treated conservatively and



20 per cent by resection. Of those who were not benefited 16 per cent were treated conservatively and 10 per cent by resection. Of those who died all were treated conservatively.

These statistical data show that the relatively unsatisfactory results of treatment especially conservative treatment would doubtless be considerably improved if suitable facilities and special institutions similar to those in other countries were available.

J A TH (Z)

Radick K R Results of Operation for Osteochondritis Dissecans (Operation for Osteochondritis Dissecans) *Bull. Ch. 193* 412

The author reviews forty-two cases of joint mice treated surgically at the Koenigsberg Clinic discussing especially the functional results. In the treatment of the knee joint Payr's S incision was usually employed and in the treatment of the elbow joint Laeven's median incision through the biceps tendon and the brachial muscle. The bed of the loose body was touched only when it presented roughness or outgrowths of cartilage on the margin. Under such circumstances the surface was very cautiously smoothed off but nothing more was attempted.

Early movement after the operation is extremely important. The success of the operation is determined by prolonged and intensive after-treatment controlled by the physician. Subsequent examinations show that a joint operated upon for osteochondritis dissecans requires at least a year to recover its full functional ability. The strength of the affected extremity is usually slow in returning being not regained completely until long after there is full mobility. With increasing strength the muscle very gradually re-acquires its former size. After an average period of two years no differences are to be noted in the musculature or strength of the extremity when the joint is free from symptoms.

Röntgen examinations show that arthritic deposits which are found chiefly in the bed of the joint body do not at any cause symptoms or limitation of motion. Even patients requiring considerable exertion such as boxing, wrestling and throwing the discus are possible in the presence of such changes. Late examinations show a marked contrast between the roentgenologically poor anatomical results and the good subjective condition of the patients. The author has often known the patient to be more satisfied with the result than the surgeon.

In none of the cases reviewed were extensive changes found in the late examinations.

The size of the incision in the joint is of secondary importance in the ultimate function. Large incisions are to be preferred to small incisions as they give better exposure and therefore facilitate the operation.

The knee joint was affected in 39 per cent of the cases reviewed and the elbow in 6 per cent. Of the cases of joint mice in the elbow the results were very good in 70 per cent, good in 22 per cent and poor in

8 per cent. Of the cases of joint mice in the knee joint the results were very good in 60 per cent, good in 10 per cent and poor in 30 per cent.

L. DUCHEM (Z)

H e The Coxa Vara of Adolescence (L e a a d tad lessen) *Revue de l'orthop.* 93 1397

Following a review of the theories as to the cause of coxa vara of adolescence the author discusses the clinical roentgen and pathological findings and the diagnosis treatment and prognosis of the condition. He compares the coxa vara of adolescence with the coxa vara of infants and with the symptomatic coxa vara of rickets, tuberculosis, osteomyelitis and trauma.

The coxa vara of adolescence is a juxta-capital lesion which decreases the angle between the neck and head of the femur and is manifested clinically by external rotation of the leg and interference with the movement of the hip joint. It occurs without previous warning between the ages of twelve and eighteen years the period of greatest growth. It terminates in changes in the shape of the head of the femur narrowing of the articular space of the hip joint which is evident in the roentgenogram and limitation of the movements of the hip joint. It is to be considered an epiphyseal separation or a sub-capital fracture and treated as such.

After from twelve to eighteen months the pain subsides and the child no longer complains of fatigue after walking but the external rotation of the leg tends to persist.

In cases in which specimens have been removed and studied it has been found that the coxa vara is repaired by bony callus sufficient to cover the displacement of the slipping head. Pseudarthrosis has never been found.

Reventive treatment is probably useless but at the period of onset (one month being arbitrarily chosen as the time required for sliding of the head on the neck and the development of the clinical manifestations) traction in abduction is advisable. When separation at the epiphysis (epiphyseolysis) has occurred the treatment of choice is Whitman's method for fractures of the neck of the femur followed by immobilization for a period of from two to six weeks.

After coxa vara has acquired a fixed state with permanent changes in the neck of the femur the shape of the neck cannot be changed by traction but forcible reduction after refracture may be attempted. The methods of treating the late results of coxa vara by cervical and subtrochanteric osteotomy are considered. To these are added arthroplasty, Whitman's and Albee's reconstructive operations and extra-articular fusion.

Coxa vara of infancy is defined as a juxta-trochanteric lesion due to variable causes which develops after the infant starts to walk a usually before the age of ten years. A gait resembling the addle of a duck or the gait associated with congenital dislocation of the hip develops because the ascent of the

greater trochanter lessens the action of the gluteal muscles. The axis of the femur is normal there is little adduction the patella looks forward and there is no external rotation. The roentgenogram shows that the bending is between the diaphysis and the neck, the angle folding on the lesser trochanter as an axis. At the onset the treatment should consist chiefly of continuous traction and relief of weight bearing. In the advanced stages an operative procedure to introduce a bone graft through the trochanteric portion of the femur up into the neck gives about the only hope of arresting the progress of the condition.

The author believes that the pathological changes of all forms of coxa vara may be dependent primarily upon disturbances of the blood supply of the head and neck of the femur.

KELLOGG SPEED M D

**Charrier and Charbonnel** Four Arthroplasties on the Knee (*Quatre arthroplasties du genou*) *Bor d a chir* 1930 No 3 271

The authors call attention to the fact that less attention has been paid to arthroplasty on the knee in the surgical literature of France than in the literature of other countries. In 1926 Chevalier was able to collect from the French literature the reports of only 31 cases in which such an operation was performed whereas the foreign literature reported 348. Of the 348 cases reported in the foreign literature satisfactory results were obtained in 200.

The first of the 4 cases reported by the authors was that of a woman forty seven years old who had a complete fibro osseous ankylosis of the knee due to gonorrheal arthritis. At operation by the Kirschner Brocq technique the anterior tibial tuberosity was temporarily detached. At the end of seven months there was flexion of 75 degrees.

In the second case that of a girl eighteen years of age an arthroplasty by the Putti technique was performed for fibrous ankylosis of the knee caused by gonococcal infection. Two years and seven months after the operation there was motion of only 25 degrees.

The third case was that of a forty year old man with fibrous ankylosis due to gonococcal infection. Operation was performed by the Ceballos method. After ten months there was flexion of 90 degrees and the patient was able to engage in various sports to swim and to ride a bicycle.

The fourth case was that of a man twenty seven years old who developed traumatic osteomyelitis with suppurative arthritis of the knee and grave septicemia following a bullet wound in the lower end of the femur. A Putti arthroplasty was performed but re infection occurred and re ankylosis resulted.

It is generally recognized that the results of arthroplasty are usually poor in osteomyelitic arthritis. Campbell who had 6 failures in 6 attempts is of the opinion that arthroplasty is contra indicated in arthritis of traumatic or pyogenic origin.

JACOB E. KLEIN M D

## FRACTURES AND DISLOCATIONS

**Young A** The Treatment of Fractures by Open Operation and Direct Fixation. A Critical Study of an Experience of Twenty Years and More Particularly of Two Consecutive Five Year Periods. *Ann Surg* 1930 xxi 838

In his review of twenty years experience in the treatment of fractures by open operation and direct fixation Young discusses especially the two five year periods from May 1 1917 to May 1 1922 and from May 1 1922 to May 1 1927. In the first of these five year periods 693 cases of fracture were treated. Open operation was done in 272 (39.25 per cent) and some form of direct mechanical fixation was employed in 421 (60.75 per cent of the total number 37.86 per cent of these treated by open operation). In the second five year period 632 cases were treated. Open operation was done in 267 (42.4 per cent) and direct fixation was employed in 365 (57.6 per cent of the total number 47.19 per cent of those treated by open operation). In both five year periods 1325 cases were treated. Open operation was done in 539 (40.67 per cent) and direct mechanical fixation was used in 786 (59.33 per cent of the total number 42.48 per cent of those treated by open operation). In the nine year period from 1907 to 1916 direct fixation was used in only 6 per cent of the cases treated.

The direct fixation was obtained by means of wire pins plates nails screws catgut sutures or a combination of such agents. The choice of method must depend upon the judgment of the surgeon. This will be influenced by various factors but the chief aim of treatment must be to secure the most satisfactory restoration of function with minimal risk and maximal accuracy in the adjustment of the fragments.

Young discusses the indications for the various types of internal fixation. In the two five year periods reviewed direct fixation was obtained by wiring alone in about one fifth of the cases. The bones to which this procedure was applied most frequently were the mandible olecranon patella and clavicle. Young has found brass wire more satisfactory than silver wire. He states that brass wire even of the finest grades is strong and pliable and can be twisted to the point of absolute stabilization of the bone fragments with minimal danger of breaking.

Pinning or nailing was done in about one fourth of the cases treated by direct fixation in the two five year periods reviewed. For certain fractures of the neck of the femur Young advocates the use of a long and relatively thick steel pin passed through the greater trochanter axially along the femoral neck and into the head. He uses such a pin also for fracture dislocations of the acromioclavicular joint fractures of the outer end of the clavicle and T shaped fractures of the lower end of the humerus. However in most cases in which pinning is indicated he employs much finer pins.

Plating was done in about one half of the cases treated by direct fixation in the five year periods reviewed. The bones most frequently plated were the femur and tibia. Screwing alone was done in only 2 cases in each period.

In conclusion Young states that open operation with direct fixation is indicated not only for certain unusual fractures and dislocations but also for a substantial proportion of fractures of the long bones as it offers the most hopeful outlook for restoration of normal anatomical conditions, favors early recovery of function and materially shortens the period of convalescence. PAUL C. COLOMBA, MD.

Henderson M. S. Habitual Dislocation of the Shoulder. *J. Am. Med. Ass.* 1933; 101: 1653.

Habitual dislocation of the shoulder is rare and its occurrence following ordinary traumatic luxation is not known. Henderson reports observations made in 37 cases in which 40 operations were performed at the Mayo Clinic in the period from 1912 to 1930.

The one definite etiological factor in the 37 cases was primary traumatic dislocation. Most of the patients attributed the dislocation to severe trauma, a fall or violence. Henderson believes that the majority of habitual dislocations are due to laceration of the anterior inferior portion of the capsule, but has been unable to prove this theory satisfactorily in performing capsulorrhaphy.

The patient usually states that the primary dislocation was produced by severe trauma and that following reduction the arm was not protected or was protected for only a short time. The pain is severe and unrelieved until reduction is effected. The second dislocation may be produced by equally severe trauma, but as a rule subsequent dislocations occur without trauma or violence. Habitual dislocations are almost always of the subcoracoid type, the head resting under the coracoid process. Posterior dislocations are not so painful and may be of the snapping type. Twenty-five of the patients whose cases are recorded were males. The ages of 20 patients ranged from twenty to forty years. The duration of the complaint varied from six months to twenty-five years, and the number of dislocations from 2 to 100.

Conservative treatment is limited to the application of an apparatus that acts as a check to abduction and forward elevation of the arm. If nocturnal dislocations occur and especially if epilepsy is a complication, the apparatus must be worn at night. Occasionally shoulders which have become dislocated 3 or 4 times lose the habit under such treatment. Often however the dislocations become increasingly frequent and surgical intervention is indicated. In some cases in which only a few dislocations have occurred the patient has a feeling of insecurity and apprehension that justifies operation.

The operations devised for the prevention of dislocation of the shoulder are of 5 types: (1) those performed on the bony structure; (2) those performed on the capsule; (3) muscle transference and muscle

lengthening; (4) check and block operations performed on the bony structure or ligaments; and (5) suspension operations.

In 16 of the cases reviewed anterior capsulorrhaphy was done for recurring anterior dislocation. It resulted in a cure in 37.5 per cent. All of the anterior capsulorrhaphies were done more than ten years ago. Three patients who were treated by posterior capsulorrhaphy for posterior dislocation remained well. Of 8 patients subjected to a Clairmont operation more than five years ago, 50 per cent were cured. Tenosuspension performed on 10 patients has resulted in a cure in all. The length of time that has elapsed since the operation is more than five years in 2 cases, more than three years in 2 cases, more than two years in 1 case, more than 1 year in 2 cases, more than eight months in 2 cases, and more than six months in 1 case. The success of this operation depends on the careful placing of strong pieces of the tendon of the peroneus longus muscle to act as a suspension ligament through drill holes in the acromion process and the head of the humerus. The incisions can be kept small, a fact worthy of consideration in the cases of women.

Bognar J. von. The Dorsal Dislocation of the Wrist (Dorsal Dislocation of the Wrist). *Arch. f. Klin. Chir.* 1933; 163: 168.

The luxation fracture described by de Quervain in which the broken anterior portion of the scaphoid bone is dislocated with the semilunar bone is an intercarpal injury. In the luxation fracture described by Oehlecker luxation of the semilunar bone is complicated by breaking off and luxation of a more or less large portion of the cuneiform bone. The simultaneous occurrence of the two injuries is rare. The author reports a case in which the injuries were associated. The patient was a jockey thirty-four years old who was thrown when his mount took a hurdle and fell on his left fist which was holding the reins in such a way that the bent fingers struck the ground first. The fall was so violent that his fist bored into the earth and his body was swung around it. The injury was evidently not diagnosed correctly by the physician who first saw the patient as he applied a plaster splint without roentgen examination and without an attempt at reduction. As the pains increased and paresthesia in the hand set in the patient entered the hospital on the fifth day after the injury.

The roentgenogram (dorsovascular exposure) showed marked narrowing of the carpus and displacement of the whole hand toward the radial side. The styloid process of the radius was broken off. The scaphoid bone was broken into two pieces but the connection of the anterior portion with the anterior row of carpal bones was preserved. The shadow of the semilunar bone was changed. The semilunar bone as a whole was displaced toward the ulna. A pea-sized fragment was broken off from the cuneiform bone. The hand was dislocated in the dorsal direction.

tion around the semilunar bone and the fragments of the scaphoid and cuneiform bones connected with it on each side

Under local anæsthesia induced with 10 ccm of a 1 per cent solution of novocain adrenalin reduction was attempted by marked dorsal flexion of the hand with axial traction followed by palmar flexion of the hand under continuous pressure on the semilunar bone. It was accomplished however only after an assistant had brought the hand into ulnar hyperabduction to overcome the radial abduction. Roentgen examination then showed all of the fractured bones to be in correct position.

A plaster splint was applied for fourteen days and after treatment then given for six weeks. At the end of that time roentgen examination showed no pathological changes in the wrist except pseudarthrosis of the scaphoid bone. Function was good. The patient was able to return to his occupation and a few weeks later was taking lessons in boxing.

This case shows that even the complication of luxation of the semilunar bone by fractures does not contra indicate an attempt at reduction. Removal of the semilunar and scaphoid bones should be considered only when reposition of the semilunar bone and the fragment of the scaphoid together is impossible.

ZILMEA (Z)

**McKenna H. Fractures of the Neck of the Femur with Special Reference to the Treatment of Intracapsular Fracture. *Ann Surg* 1930 91: 882**

The author first briefly reviews the embryology and anatomy of the hip joint with regard to the nutrition of the head and neck of the femur at different stages of development. Keibel and Mall found that in embryos between 0 and 30 mm in length it is possible to distinguish a fibrous band passing through the joint cavity of the hip which is later to form the ligamentum teres. According to Moser blood vessels persist in this structure up to about the fourth year but later most of them atrophy. According to Kolodny the blood vessels

supplying the head of the adolescent femur include vessels coming from the diaphysis of the femur epiphyseal vessels vessels accompanying the ligamentum teres and periosteal vessels. McKenna states that in the event of intracapsular fracture these vessels may be considered end arteries and all of them may be injured. Under such circumstances the formation of bony callus will depend upon whether a blood supply sufficient to nourish the head and proximal fragment of the neck of the femur remains or is re established.

In McKenna's opinion the ideal treatment of intracapsular fractures of the neck of the femur is the abduction method following either natural or artificial impaction. The Cotton method of artificial impaction is cited as giving excellent results.

McKenna reviews twenty open operations which he performed in nineteen cases in the last fifteen years. In all but two in which steel nails were used autogenous tibial transplants were employed. In some of the cases the grafts were introduced without opening the capsule. In the others equally good results were obtained when the capsule was opened. A dowl opening was made through the compact portion of the shaft of the femur with an electrically driven drill and continued through the neck into the head by means of a hand drill the previously prepared graft being then driven into the neck of the femur. In the two cases in which steel nails were used non union resulted.

McKenna draws the following conclusions:

1 In carefully selected cases of intracapsular fracture of the femur the open method of treatment may be used without undue risk.

2 In some cases the fracture may be treated without opening the capsule the operation being thereby simplified.

3 The physiology of bone repair seems to show that the autogenous bone transplant accelerate callus formation in fractures with a poor blood supply and therefore may be used to advantage in the repair of certain intracapsular fractures of the neck of the femur.

PAUL C. COLONNA, M.D.

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Allen A W Recent Advances in the Treatment of Circulatory Disturbances of the Extremities  
1 S 8 930 x 93

In a special clinic established at the Massachusetts General Hospital for the treatment of circulatory diseases of the extremities 63 new patients were examined and treated during the period from December 1918 to May 1 1930. Of these 569 were treated for varicose veins and 194 for some other circulatory disturbance.

The author classifies arterial diseases of the extremities into a main group, those with mechanical arterial obliteration and those dependent upon vasomotor imbalance. The former include senile and diabetic arteriosclerosis, Buerger's disease and the disease of the middle coat of the artery described by Monckeberg. In the latter are included cases usually termed Raynaud's disease but varying in vasomotor imbalance from plastic color changes to such constant changes as scleroderma.

In the Massachusetts General Hospital it has been found that patients with mild symptoms may carry on for an indefinite period when given occasional advice in the Out Patient department concerning rest, hygiene, proper protection of the feet with lamb's wool and woolen stockings and exercises to be carried out at home. In suitable ambulatory cases of vasomotor disorders or thromboangitis obliterans the patient is occasionally sent to the Emergency Ward for twenty-four hours for the intravenous injection of typhoid vaccine for the production of prothrombin shock. Patients who are completely disabled and need constant observation are treated in the hospital. They are first given any emergency attention necessary and then treated routinely by rest, the application of heat, hygienic measures, the administration of fluids, dietary control and exercise. Specific treatment is not instituted until stabilization has been obtained. Advancing infection is drained and advancing lymphangitis treated by amputation. Non-specific foreign protein is treated in thromboangitis obliterans by the injection of alcohol into the peripheral nerves in cases of intractable pain and sympathetic ganglionectomy in advanced vasomotor disorders. When in chronic cases improvement is not evident after a given time (from one to eight weeks depending upon the condition and contributory factors) more radical measures are adopted. In a case in which the condition of an extremity has grown definitely worse in spite of treatment and amputation of the patient is referred to the Social Service Department.

MANUEL L. CHUTEASTEN, M.D.

Schloffer H The Changes in a Racemose Arterial Angioma (Umbilical Angioma) after Excision  
1 S 8 930 x 93

The author reports a case of racemose arterial angioma in a man twenty-one years of age who was under treatment for seven years. At the first operation the left external carotid artery was ligated and the entire tumor mass was excised after extensive percutaneous ligation. Three years later the tumor recurred. A second percutaneous ligation was then done and followed by extensive puncturing with the galvanocautery. A year later the tumor enlarged to an enormous spongy cushion but it then resembled more closely a racemose arterial aneurysm and did not pulsate. The findings of palpation suggested a cavernoma. Histologically there was no longer any racemose arterial angioma; the neoplasm consisted of dilated blood vessels chiefly veins and foci of a simple blastomatous angioma with isolated cavernous spaces.

This case is believed by the author to support the theory that the racemose arterial angioma is the result of an abnormal arteriovenous communication and that the pulsating vessels of such tumors are not arteries but arterialized veins.

NAEGELI (Z)

Rosenthal S R Thrombosis and Embolism  
1 S 8 930 x 93

Of 1,000 autopsies thrombosis was found in 134 cases, embolism in 76 and fatal lung embolism in 2. The relation of these conditions to age is shown in Table I.

TABLE I—THE RELATION OF AGE TO THROMBOSIS, EMBOLISM AND FATAL LUNG EMBOLISM

| Age   | Arteries | Thrombosis | Embolism | Fatal lung embolism |
|-------|----------|------------|----------|---------------------|
| 0-5   | 4        | 6          |          |                     |
| 5-10  | 65       | 9          |          |                     |
| 10-15 | 5        | 3          |          |                     |
| 15-20 | 35       | 3          | 3        |                     |
| 20-25 | 5        | 3          |          |                     |
| 25-30 | 9        |            | 5        |                     |
| 30-35 | 5        | 3          |          |                     |

Thrombosis was found in 15.2 per cent of the male and 9 per cent of the females. The incidence of non-fatal embolism was similar. The cases of fatal lung embolism were those of females.

With regard to race it was found that the incidence of thrombosis and embolism was about the same in white and colored persons.

The relation of thrombosis and embolism to surgical procedures, trauma and labor is shown in Table 2; their relation to changes in the heart and arteries in Table 3; and their relation to infections and inflammations in Table 4.

TABLE II—THE RELATION OF THROMBOSIS AND EMBOLISM TO SURGICAL PROCEDURES, TRAUMA AND LABOR

|                 | Cases with thrombosis | Cases with pulmonary embolism |
|-----------------|-----------------------|-------------------------------|
| Tal umb         | 895                   | 5                             |
| Th mb is        |                       |                               |
| Emboli m        | 6                     |                               |
| l tal g emb lsm |                       |                               |

TABLE III—THE RELATION OF THROMBOSIS AND EMBOLISM TO CHANGES IN THE HEART AND ARTERIES

|                   | Cases                |
|-------------------|----------------------|
| H t               |                      |
| Hyp rt phy dl t t | ff cy with d mp t 75 |
| At phy with d mp  | ti                   |
| D ase f y v       | l with g f my d m d  |
| d mp tio          |                      |
| E d d ti          |                      |
| P ditis           | 3                    |
| V                 |                      |
| Art rios l sa     | 47                   |
| Syphili           | 9                    |
| C b lv cul di     |                      |

TABLE IV—THE RELATION OF THROMBOSIS AND EMBOLISM TO INFECTIONS AND INFLAMMATIONS

|                 | Thrombosis | Embolic | Septic | Infected |
|-----------------|------------|---------|--------|----------|
| Cas             | 56         |         |        |          |
| I f t           | 49         |         |        |          |
| I f t mmat      |            |         |        |          |
| P mal to th mb  | 17         |         |        |          |
| P m t f m th mb | 9          |         |        |          |
| P erp lwp       | 4          |         |        |          |

The incidence of thrombosis and embolism and of heart and vascular changes was higher in well nourished subjects than in the others.

**Jaeger F.** The Treatment of Thrombosis and Thrombophlebitis (Zur Behandlung der Thrombose und der Thrombophlebitis) *Zentralbl f Chir* 1930 p 1721

Since 1923 the author has often employed the compression dressing of Fischer for thrombosis and thrombophlebitis of the leg and thigh with uniformly satisfactory results. Fischer's method consists in making the venous valves again capable of closure by means of compression.

The diseased vein is closed at a point central to the location of the thrombus and the dressing resembles that applied to the umbilicus of the infant. Adhesive plaster is then applied firmly and evenly around the leg. The application of the bandage must be done very accurately so that it does not bind or cause pressure from folds. The author now uses the well known elastoplast bandage for the circular dressing. The bandage should begin at the foot and continue to at least 10 cm above the thrombosed spot. It must be drawn up tightly.

With the application of the compression dressing the veins and lymph vessels of the leg are markedly constricted and the thrombosis disappears more quickly than otherwise. In addition the patient may get up at once and be about if his condition otherwise allows. The larger the dressing the more striking the result. The pain soon ceases, the fever

subsides and the leg which previously felt heavy seems to the patient much lighter. There should be no embolism.

Jaeger's experience is based on more than 200 cases in hospital practice where the compression dressing was applied with the first signs of thrombosis. No patient was compelled to remain in the hospital for a longer period of time than would have been necessary if the thrombosis had not occurred as ambulatory treatment could be given.

As Fischer's method has been used with equally good results also by others, Jaeger believes it should be given a further trial.

RODE (Z)

**Leriche R and Fontaine R.** A Contribution to the Experimental Study of the Mechanism of Action of Ligation of the Vein in Obliteration of the Artery (Contribution à l'étude expérimentale du mécanisme d'action des ligatures veineuses dans les oblitérations artérielles) *Lyon chir* 1930 xxvii 602

It has been shown experimentally that after ligation of a large artery ligation of the accompanying vein brings about a rise in the blood pressure. Recently ligation of the companion vein has been recommended for cases of spontaneous obliteration of an artery and as an adjunct to periarterial sympathectomy in the treatment of atheromatous lesions of the large arteries.

The authors formerly believed that when the vein is intact the aspiration of blood by the venous system following arterial ligation increases the fall in the blood pressure. In experiments recently carried out on dogs they found that ligation of the femoral vein brought about an arterio-capillary congestion which resulted in peripheral vasoconstriction with increased pressure in the distal end of the ligated femoral artery lasting for from fifteen to sixty minutes and followed by a slow return to normal. When the vein was re-opened there was a sudden fall in the peripheral pressure below its initial level due to active peripheral vasodilatation which was followed by a slow return to normal. They believe that in vein ligation in man the establishment of collateral circulation acts in the same way as re-opening of the vein in the experimental animal. They conclude that it is the active and intense peripheral vasodilatation and not the initial and transitory peripheral hypertension which is of therapeutic value. In short ligation of the vein in obliteration of the artery is a masked sympathectomy. The active vasodilatation when the ligation on the vein is loosened is just like the effect of removing a garrot.

AUDREY G MORGAN M D

## BLOOD TRANSFUSION

**McLean J A.** The Blood Cells. Recent Advances in Their Examination and Interpretation *Mcd J A str l a* 1930 ii 623

McLean reports a careful study of blood cells and methods of estimating other constituents of the

blood. He calls attention to the fact that red cell counts will not indicate the degree of anemia correctly unless the blood volume remains constant. If the plasma volume is maintained at a constant level the total blood volume in conditions with a depletion of red cells must be lowered. In rabbits with lead poisoning the plasma volume remained constant there was a fall in corpuscular volume averaging 43 per cent and the average red cell count fell 29 per cent.

The estimation of hemoglobin by the various methods is considered and a table is presented in which the findings of the Haldane carbon monoxide, the Sahli, and the Tallquist methods in diseased and normal subjects are compared. A considerable discrepancy is apparent. The Tallquist method is crude and should be discarded. The Van Slyke modification of the Haldane and Smith method has reduced the error to 0.43 per cent.

In estimating the leucocyte count the diurnal variation must be considered.

The halo method of measuring the size of small objects from the diffraction of light is applicable in the diagnosis of pernicious anemia and possibly in familial acholic jaundice. The author reports his study of this method and presents tables which compare the results obtained with Lipper's diffraction micrometer and Leisner's colorimeter.

For the microscopic examination of blood the Giemsa stain is recommended. The author shows the development of the red cell from megakaryoblasts and erythroblasts by illustrations. The red cells derived from the megakaryoblasts are giants in the morphological sense and are usually termed megalocytes. In the more immature cells the nucleus has a well defined fine chromatin structure with nucleoli and the cytoplasm takes the basic stain with a slight slate gray tinge from the presence of hemoglobin. As the cell matures the hemoglobin in the cytoplasm increases. The erythroblast is a smaller cell and the chromatin network is coarse and has a radiating appearance. A reticulocyte is an immature red cell in which the basophilic substance has been precipitated in the living cell by a dye such as brilliant blue. An increased number of reticulocytes in the peripheral circulation indicates active regeneration of red cells in the bone marrow. In familial acholic jaundice the most obvious defect is in increased fertility of the mature red cells. To compensate for the curtailed existence of these cells in the peripheral circulation the bone marrow undergoes hyperplasia as is evident from the very high reticulocyte count. This disease is in contrast to pernicious anemia in which there is defective formation of red cells in the bone marrow and the peripheral circulation shows a very low reticulocyte count.

The response of pernicious anemia to liver therapy is not constant; it may be inhibited by sepsis.

In the diagnosis and prognosis of obscure cases of sepsis Schilling's index is useful.

The monocyte and the small lymphocyte are readily identified from their characteristic structure but

other mononuclear cells apparently in an intermediate group are classified with difficulty even with the aid of the cytochrome reaction and supravital staining.

There is an exact correlation in the morphology of bone marrow and blood.

Pernicious anemia is apparently a deficiency disease in which some substance essential for the normal development of red cells is lacking.

W. N. ROBERTS, M.D.

## LYMPH GLANDS AND LYMPHATIC VESSELS

Leucutis T. and Price A. E. Mikulicz's Disease and the Mikulicz Syndrome: Their Treatment by Irradiation. *Am. J. R. X.* 1931, 49.

On the basis of a study of nine cases the authors conclude that the symmetrical enlargements of the lacrimal glands and one or more pairs of the salivary glands described as Mikulicz's disease should be divided into two main groups: Mikulicz's disease proper and the Mikulicz syndrome.

They include with Mikulicz's disease proper all symmetrical non-inflammatory swellings of the lacrimal and salivary glands without involvement of the lymphatic system and without alteration of the blood. Two of their cases were of this type.

With the Mikulicz syndrome they include enlargements of the lacrimal and salivary glands which are manifestations of some clinically and pathologically well defined disease such as leukemia, tuberculosis, syphilis, lymphosarcoma, Hodgkin's disease or uveoparotid fever.

In the treatment of the first group the technique of irradiation therapy is based on the presence of a lymphocytic infiltration with an organized structural arrangement, a so-called lymphadenosis of the affected lacrimal and salivary glands. Because of this condition the ideal doses (from 25 to 50 per cent of the total dose) given over a relatively long period of time are more beneficial than a single massive dose such as is administered in the treatment of neoplastic processes and the quality of the rays used is of considerably less importance.

Three of the authors' cases are classified as cases of leukemia leading to the Mikulicz syndrome. The manifestations of the disease resembled closely those of any leukemia and it is probably more correct to assume that the condition was leukemia with enlargement of the salivary glands rather than an aleukemic stage of leukemia. The technique of irradiation employed was the same as that ordinarily used in the irradiation therapy of leukemia.

Two of the authors' patients are suffering also from tuberculosis and in at least three cases in the literature in involvement of the excreted salivary glands by tubercle bacilli as demonstrated. The author treated the three cases complicated by tuberculosis in the same way that they treat tuberculous adenitis. In none of the three cases was syphilis or uveoparotid fever thought to be responsible for the tumefaction. They had one case of lymphosarcoma and one case of Hodgkin's disease which presented at the same time

enlargement of one or more pairs of salivary glands  
In both instances irradiation therapy caused improvement

CHARLES H. HEACOCK, M.D.

Loeper M. and Lemalre A. Inoculation with the  
Blood and Urine of Two Patients with Hodg-  
kin's Disease (L'inoculation du sang et des urines  
de deux malades atteints de maladie de Hodgkin)  
*Bull. et mém. Soc. méd. d'hôp. d'Par.* 1930 xiv  
1444

In the first case reported the presence of lympho-  
granulomatosis was proved by biopsy and the fatal  
evolution of the condition. The only peculiarity  
was an attack of fever up to 39 degrees C. occurring  
daily between 5 and 7 p.m. accompanied by profuse  
sweating and followed by an abundant emission  
of urine. These symptoms suggested a bacteræmic  
discharge in the course of a subacute infection but  
blood cultures were constantly negative. Three  
guinea pigs were inoculated with blood taken at the  
height of a febrile attack and with urine obtained  
aseptically during the decline of such an attack.  
The animals died ten, eleven and twelve days after  
the inoculation and at necropsy the liver, spleen,  
kidney and adrenals were found congested and  
almost hæmorrhagic. Histological examination of  
the liver supported the hypothesis that the lesions  
were not of the ordinary type. On low magnifica-  
tion the parenchyma appeared dotted by pale areas  
poorly stained with eosin where all trabecular co-  
ordination had disappeared. There was to be seen

also an intrabecular hæmorrhagic infiltration. The  
vessels were dilated and engorged with blood. On  
high magnification the parenchyma showed numer-  
ous necrotic areas in which the cells were poorly  
stained and the nodules showed karyorrhexis or  
pyknosis. In the surrounding areas there were  
masses of cells formed by macrophages and poly-  
nuclears many of which were filled with acidophile  
granulations.

In the second case that of a woman with Hodg-  
kin's disease four guinea pigs were inoculated with  
the patient's blood. One of the animals died thirty  
days later. At necropsy on this animal the liver and  
spleen were found to be enormous, adherent and  
filled with whitish nodules the size of lentils. The  
caseous pus showed no bacteria. Sections dem-  
onstrated that the small abscesses were situated in  
the parenchyma. In the surrounding areas there was  
an infiltration very rich in eosinophiles and in  
places there were multinuclear macrophages re-  
sembling the cell of Sternberg.

It is admitted that these findings are open to  
criticism. Transmission of the disease in series to  
animals was not possible. Moreover the hepato-  
splenic changes in the guinea pig in the second ex-  
periment resembled the zoöleic pseudotuberculosis  
of the guinea pig. The authors believe that the  
hepatic lesions in the guinea pigs used in the first  
case represented the first stage of the lesions found  
in the guinea pig used in the second case in which the  
condition was of longer duration.

PAGE



# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Gottman J P la D and Ziegler J M The  
Effects of the Electrocautery on Normal Tissues  
Surg G Obst 93 1 667

In a study of the effects of the electrocautery on the skin muscle liver kidney and spleen of normal adult albino rats the authors found that the electrocautery incision produces extensive necrosis which acts as a foreign body producing a foreign body giant cell reaction. Following a discussion of the advantages and disadvantages of the electrocautery they conclude that the promiscuous use of the electrocautery is to be discouraged.

JOHN J MALONEY MD

Oeholt R H Postoperative Pulmonary Hypoventilation  
JAMA 193 484

After operations on the abdomen the expansion of the chest is diminished 5 per cent and roentgenograms show that diaphragmatic excursions are reduced from 33 to 50 per cent. In a study of 218 patients subjected to laparotomy the vital capacity

as found reduced by 40 per cent after operations on the lower abdomen and by 64 per cent after operations on the upper abdomen. As all clinical and roentgenological evidence of the degree of pulmonary hypoventilation followed closely the evaluation of the vital capacity the vital capacity was used as a criterion of the importance of various factors influencing respiratory action after operations on the abdomen.

The thoracic volume is decreased and expansion of the lower lobes of the lungs is prevented by high position of the diaphragm due to the opening of the abdominal cavity. Other mechanical factors include edema in postoperative hypoventilation of the lungs as reflex splinting of the muscles of the abdomen due to pain surgical dressings binders and the patient's position. Anesthesia alone causes a reduction in the vital capacity.

Postoperative treatment should include all measures tending to correct faulty ventilation of the pulmonary tissue.

WILLIAM E SHACKLETON MD

## ANTISEPTIC SURGERY TREATMENT OF WOUNDS AND INFECTIONS

Kraft R Surgical Treatment of Recent Accidents  
(Ubersicht über die Behandlung der Verletzungen)  
Festschr Dtsch 193 449

The emergency treatment of wound should be limited to essential tamponade and ligation of limbs should be performed relatively seldom. For the final treatment Friedrichs wound excision with

the use of rivanol (1 per cent) Pregl solution and balsam of Peru when necessary is recommended. As a rule a safety drain or gauze strip is inserted to reduce the danger of gas bacillus infection. In machinery accidents this danger is slight but in street accidents it is great.

In a period of three months gas bacilli were found in thirteen wounds without clinical manifestations of their presence. The effect of gas gangrene serum is not definitely recognizable. Prophylactic tetanus treatment should be given. In manifest tetanus chloral hydrate magnesium sulphate and morphine therapy are indicated. Recovery results in 82 per cent of the cases.

In joint pleural and peritoneal injuries primary closure of the serous cavities is desirable. In cases of skull and brain injury a careful inspection should be made and primary wound closure obtained if possible. The patient suffering from concussion should rest in bed for four weeks. When there is a pressure pulse a 40 per cent glucose or a 2 per cent sodium chloride solution should be administered. In severe burns a 2 per cent tannin solution should be used as a spray every hour until a crust is formed or a mixture of 15 gm of tannic acid 250 gm of lime water and 250 gm of linseed oil should be applied to the wound on a compress twice daily for from four to six days. Fracture treatment has been improved by wire extension the unpadded plaster cast and distraction by Boehler's method. The open treatment of fractures can often be avoided. The treatment of vertebral fractures has been advanced by the rules of Magnus. In fractures of the clavicle the arm may be mobilized early when the bandage technique of Bergmannsheil is used. In fracture of the radius the arm is usually splinted in dorsal flexion and mobilized early. Transparent X-ray apparatus is recommended.

BUETTNER (Z)

Seck H and von T. Studies in Wound Infections  
Festschr Dtsch 193 372

The author made a bacteriological study of thirty-seven accidental wounds with the use of the violence test described by Ruge and Skjavan. In order that the bacteriological status before treatment might be determined the examination was made on tissue removed in the primary excision of the wounds. The author's intention was to determine how the healing of wounds is influenced by the original infection and the degree to which primary excision combined with the use of antiseptics is able to prevent the development of infection in accidental wounds.

In thirteen of the twenty-seven wounds very few bacteria were found before the treatment. In all of this group primary healing resulted.

In five cases numerous bacteria were present but as they were completely or almost completely reduced in the virulence test they were evidently of low virulence. Primary union resulted in four of these cases.

In nine cases there were numerous bacteria which were not at all reduced or only incompletely reduced in the virulence test. The primary excision failed to prevent infection in eight of this group and primary union was obtained in only nine.

### ANÆSTHESIA

Horstenegg W A. Avertin Narcosis in Children (Avertinnarkosen bei Kindern). *Schmerz* 1930 in 10.

In Spitz's clinic avertin narcosis is employed only for children because the child's heart, lungs, liver and kidneys are fairly resistant. The chief advantage of avertin narcosis is that it permits the extension of operative interventions without harm, especially in the correction of deformity and difficult repositions of hip joint luxation. A disadvantage is the impossibility of interrupting the narcosis after it has once been started.

The author reviews 115 narcoses in 109 children six months of age and older. A 2 per cent solution of avertin was used. The dose was 0.125 gm per kilogram of body weight. There was no preliminary medication. The intestine was emptied by enema. A liquid diet was given on the day before the operation.

The solution was prepared carefully in accordance with the directions. The anæsthetic was always given in the ward and after from ten to fifteen minutes the child was taken to the operating room. The best time to begin the operation is from twenty to thirty minutes after the introduction of the anæsthetic. The necessary deep sleep lasts from forty-five minutes to one hour. Awakening does not occur until after from one and one-half to three hours.

In the cases reviewed no solution was ever found in the intestine after the operation was completed. As a rule the blood pressure rose slightly at first, fell about ten minutes after the introduction of the avertin and rose again after a further ten minutes. In one-fourth of the cases there was no fall in the blood pressure. The most marked fall was from 5 to 30 mm Hg. No excitement and no injuries to the heart, kidneys or intestine were observed. In 4 per cent of the cases complete narcosis was obtained with the avertin alone, but in the others amounts of ether up to 40 c.c. were required in addition.

These observations indicate that avertin narcosis is entirely safe for children. ZWIERG (Z)

André Thomas. The Cauda Equina Syndrome and Spinal Anæsthesia (Syndrome de la queue de cheval et rach anesthésié). *Presse Méd. Paris* 1930 xxxvi: 1387.

Lesions of the cauda equina are most often caused by trauma, compression by bone (Pott's disease,

metastatic cancer of the lumbar vertebrae and sacrum), primary tumors of the nerve roots and affections of the meninges and syphilis.

After describing briefly the urinary, rectal and sexual symptoms associated with lesions of the cauda equina, the author reports the case of a woman twenty-five years of age who developed the cauda equina syndrome following an operation for resistant hymen which was performed under spinal anesthesia induced by the injection of 8 cc of a 4 per cent solution of novocain. Immediately after the operation the patient complained of a feeling of numbness in the lower part of the body. Movement of the limbs was difficult and walking was impossible.

Several weeks after the operation movement of the limbs was better, but the patient still required support. At times she suffered from lancinating pains in the calves, particularly in the left leg. During the year following the operation she became pregnant. Labor was prolonged for five days. Four years later she had entirely recovered the function of her limbs but complained of urinary and rectal incontinence. She was completely anæsthetic to sexual relationships but had orgasms during dreams. A characteristic sign of cauda equina lesion was her frequent change of place when sitting due to the feeling that she was sitting on a cavity or opening. For several months she was given treatment with the high frequency current over the perineal, anal and vaginal regions. This caused gradual improvement, particularly in urination.

The cauda equina syndrome seems to be localized in the region of the last three sacral nerves.

The unfavorable sequelæ of spinal anesthesia are well known. They include headache, meningeal irritation, postoperative vomiting, motor disturbances, paralysis of the limbs and paralysis of cranial nerves, especially the oculomotor nerve.

The unusual feature of the author's case was the persistence of the sequelæ eleven years after the operation. The complications of spinal anesthesia have been attributed to toxic, mechanical, hydraulic, meningeal and circulatory factors. They have occurred after the injection of stovaine, novocain, tetracaine, cocaine, alpine, caffeine and adrenalin. The drugs most frequently accused in the reports are novocain and stovaine, but these are the drugs most frequently used. The author suggests that sensitiveness or neurotropism may be a factor.

André Thomas cites the work of Lapique and Legendre which demonstrated anatomical changes in the meningeal sheath and the axis cylinder after contact with an anæsthetic agent. When physiological serum was substituted for the anæsthetic the nerve sheath and cylinder returned to normal. The proper induction of spinal anesthesia requires freshness of the solution, careful dosage, measurement of the cerebrospinal fluid pressure, slow injection and proper position of the patient. Even when these requirements are met, unfavorable

sequelæ are not always prevented as there remains the possibility of idiosyncrasy of the patient to the anæsthetic

JACOB E. KLEIN, M.D.

Jones W. H. A New Method of Inducing Spinal Anæsthesia with Percaine (No. 11 Meth. 1 d. a. c. s. h. d. e. p. l. p. e. c.) 1930 579

Percaine is a derivative of quinine and therefore related to quinine. It belongs to an entirely different group than cocaine and novocain. It is readily soluble in alcohol and water and gives neutral solutions. The solutions should be made with distilled water. The pericaine must not come into contact with alkalies as such contact produces a basic insoluble precipitate.

Laboratory experiments have shown that the effects of percaine are a little more intense than those of cocaine and 20 times as intense as those of novocain. Therefore although the toxicity of percaine is greater than that of cocaine and novocain it is greatly reduced by the extreme dilutions possible. The local effect of percaine lasts longer than that of a standard precipitate.

After preliminary tests which proved that pericaine does not injure the tissues of the spinal fluid it may be used in more than 100 cases. It employs a method instead of the usual spinal fluid. He injects the anæsthetic under pressure. The second or third dorsal vertebra is a good level for the anæsthesia. It could extend higher than the fifth dorsal but would not reach the cervical roots. At first Jones injected 15 ccm. of a 1:1000 solution. He obtained complete sphincter relaxation with perfect relaxation of the abdominal muscles but it has sometimes used as much as 10 ccm. His patients ranged from sixteen to eighty years of age. A solution of 1:100, 1:500 or 1:2000 may be used but Jones has found it generally best to employ a solution of a lower concentration than the spinal fluid which is made with 0.5 per cent salt solution. With such a solution and the patient in dorsal decubitus the anterior root is the most intensely anesthetized. The patient should first be placed in ventral decubitus to induce anæsthesia of the posterior roots and then changed to dorsal decubitus.

In every case a dose of from 6 to 10 cgm. of epinephrine is given before the injection of the anæsthetic. The duration of the anæsthesia is in proportion to the concentration of the pericaine. A 1:200 solution is sufficient for operations requiring about three quarters of an hour. A 1:500 solution for those requiring between one and two hours and a 1:1000 solution for those requiring two hours or more. Fifteen cubic centimeters of a 1:2000 solution is enough for painful appendectomy. For anæsthesia of the dorsal roots the injection is made between the first and second lumbar vertebrae for anæsthesia of the sacral and coccygeal plexuses between the first and third lumbar vertebrae and for blocking of the cauda between the fourth and fifth lumbar vertebrae.

The injection always causes a fall in the blood pressure but the decrease is less than that produced by novocain or stovaine. The pulse is very little affected and the patient's general condition is much better than when novocain or stovaine is used. Vomiting sometimes occurs and as neither the afferent tract of the vagus nor that of the phrenic is anesthetized there may be a certain amount of pain in exploration of the upper part of the abdomen. Care must be taken to prevent paralysis of the motor phrenic nerves.

From his experience the author concludes that pericaine is the best anæsthetic for spinal anæsthesia because of its powerful anæsthetic action and low toxicity.

ANDREW C. M. R. M.D.

Albani and P. J. C. The Nervous System after Spinal Anæsthesia. Slight Pyramidal Signs Found in Clinical Examination of Persons Subjected to Operation (Les. q. c. l. e. c. d. l. a. b. n. t. h. c. l. t. t. q. p. y. m. l. t. o. u. t. a. l. m. c. l. q. l. e. q. c. l. p. e. t. e.) Rev. S. d. 1. d. m. d. t. d. h. 93 1953

The authors summarize the clinical findings with regard to the nervous system in twenty-four patients who had been subjected to spinal anæsthesia.

Spinal anæsthesia may be followed by nervous symptoms persisting for months or even years. The symptoms may be classified as apparent and hidden symptoms. The first group includes spasmodic paraplegia, crural monoplegia and the Brown-Séquard syndrome. The second includes lesser nervous signs in one or both lower limbs which cause the patient no inconvenience and are revealed only by clinical examination. Some of the latter are pyramidal signs revealed at once in the first examination by the Babinski and Oppenheim tests or exaggeration of tendon reflexes which normal in the upper limbs cannot be attributed to a general increase of reflex excitability and clonus of the foot or patella. Others are signs which appear only after the patient has made an effort (Djerine's syndrome of intermittent metatarsal claudication). Many patients show absolutely no abnormality on clinical examination of the nervous system after spinal anæsthesia.

Thinking that perhaps the hidden syndrome might be due to slight medullary lesions caused by the spinal puncture the authors studied the nervous systems of several subjects who had undergone lumbar puncture for diagnostic purposes. The slight symptoms were not found.

The studies of Stefanich show that certain aseptic meningeal reactions may be caused by anæsthetizing fluids. The toxin acts perhaps by producing congestive reactions which give rise to a simple hypereosinophilia or acute meningitis. The authors conclude that it acts not only on the meninges but also on the cord perhaps by extension in the depth of the inflammatory process and that the effect of myelitis of variable dimensions thus determined then give rise to syndromes of importance or to lesser hidden syndromes.

1 cc

## SURGICAL INSTRUMENTS AND APPARATUS

Knorr M. The Bacterial Content of Sterile Commercial Catgut (Der Keimgehalt des sterilen Handelscatguts) *München med Wchschr* 1930 1 581

The author first emphasizes that an object may be called sterile only when cultures made from it show no bacterial growth. If it contains organisms which have been hindered in their growth or deprived of their capacity for growth by bactericidal measures it is not sterile since after the removal of the disinfecting substance bacterial growth may again be obtained.

Knorr's studies of commercial sterile catgut which have been carried out over a period of years have demonstrated the following facts:

One group of samples contained aerobic spore formers, non pathogenic anaerobic spore formers and almost always pathogenic anaerobic spore formers (gas gangrene, malignant oedema). Another group differed from the first group only in the less frequent occurrence of the last mentioned form; nevertheless animal experiments demonstrated the presence of bacteria of high virulence also in this group. In the third or most sterile group there

were aerobic spore formers of the earth bacillus group.

Accordingly 80 per cent of the catgut samples examined did not conform to the officially established definition of sterilization. The bacteriological findings were completely confirmed by microscopic examination. Therefore it appears necessary that the catgut serum considered harmless by the clinician be examined for its bacterial flora as it might be found to contain even gas gangrene bacilli. Particularly noteworthy was the fact that sterile catgut showed acid fast bacilli which in form resemble tubercle bacilli. This finding also should be followed up. Moreover it must be determined whether the actinomycetes fungus may not be present in sterile catgut. Obviously it is not possible to attribute all wound disturbances to catgut organisms particularly when non spore formers are encountered. The latter are certainly destroyed by the catgut disinfecting methods.

Catgut may give rise also to reactions due to foreign protein hypersensitiveness.

In conclusion Knorr states that according to the findings of recent investigations (Kronrich) our methods of sterilizing operating linen and injection fluids leave much to be desired. MAX BUDDE (Z)

# PHYSICO-CHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Cappelli L R dio Anaphylaxis In the Normal  
An mal (La d fil n ll g m  
male) R d l m d 193 x 1 84

Cappelli failed to produce anaphylactic shock in sensitized rabbits by exposing them to large doses of the roentgen rays. He therefore concludes that irradiation does not break down the physiological proteins of the organism into albumoses and peptones since if such breaking down had occurred in his experimental animals anaphylactic shock would have resulted.

He states that roentgen ray sickness although clinically analogous to anaphylactic shock is not a specific syndrome but a general organic reaction due to disequilibrium of elementary substrata.

C D HAAGSEY M D

Glaser M A C mpiodol (Iodized Rapeseed Oil)  
Its Use In the Roentgenological Visualization  
of the Body Cavities A J R 193  
xxi 477

Campiodol is rapeseed oil containing 43 per cent of elemental iodine. Its specific gravity is 1.789. It is very stable only slightly irritating and almost non-toxic. Dogs have withstood an oral dose of 6.75 ccm per kilogram of body weight and an intravenous dose of 1.5 ccm per kilogram of body weight. A mixture of campiodol with ethyl oil has a specific gravity of only 0.84 and is of great value in the visualization of body cavities.

The preparations of campiodol recommended by Glaser for the various cavities are as follows: tracheobronchial tree undiluted campiodol; subacromioclavicular space blood vessels fistulae female genitalia sphenoidal sinus frontal sinus lachrymal ducts meatus meatus and eustachian tubes a dilution of 4 milliliter saline to 50 per cent solution and genitourinary tract an emulsion.

A very satisfactory medium for urography is an emulsion of campiodol with acacia. Emulsified campiodol has a specific gravity of 0.78 and a viscosity only slightly more than twice that of water. It is non-irritating, non-toxic and more opaque than 15 per cent sodium iodide. It has been employed successfully in more than 30 cases.

CHARLES H. HECK M D

## RADIUM

Ast M L Dosage Measurement in Surface Radia-  
tion Therapy (O s l l m d m  
t ap d sup fice) R d l m d 93 x 65

Ast believes that the Dominici unit measured by means of the ionometer of Danne and Mallet is the best unit for measuring surface radiation by

radium. He finds the terms millicuries destroyed and milligram hours to be inapplicable to the estimation of surface radiation. He defines the Dominici unit as the dose received in ten hours by a spherical ionization chamber of a volume of 1 ccm with walls of 1 mm of aluminum placed with its center 26.2 mm from the middle of the axis of a tube containing 10 mgm of radium. The tube should have an internal diameter 16 mm in length and walls with a filtration (platinum or gold) equivalent to 2 mm of platinum. The axis of the tube should be normal to the direction in which the distance from the center of the ionization chamber is measured.

The ionometer of Danne and Mallet is at once an electroscope and an ionization chamber. The displacement of the gold leaves suspended in the chamber is registered on a micrometer scale placed opposite it. The author associates have drawn up tables from which the number of Dominici units and the skin erythema dose can be calculated in terms of the ionometer readings.

Ast reports a series of experiments to determine the amount of energy lost when masses of water of various dimensions are interposed between the radiant source and the measuring chamber and when the measuring unit is placed at the level of masses of water. From the results he draws the following conclusions:

1. Measurements to determine the surface dosage may be made either in air or at the level of a mass of water of any size.

2. When the amount of absorption in transmission through tissue as in depth dosage calculation is in estimated masses of water as nearly as possible the size of the mass of tissue to be radiated should be used.

C D HAAGSEY M D

Quick D Radium in Cancer Therapy B I M J  
93 765

This is a review of the methods of treating cancer which are employed at the Memorial Hospital, New York.

Quick states that radium is best adapted for interstitial implantation and for use in special applicators within body cavities. For external irradiation over large surfaces the X-ray should be employed. For the control of the adult type of epidermoid carcinoma from 7 to 10 erythema doses throughout the tumor are necessary. Undifferentiated types require at least one half of that amount of irradiation. In cases of tumor within the oral cavity the maximum dose which can be delivered to the neoplasm within a period of three weeks by external irradiation alone is 3 skin erythema doses. Since this amount of irradiation is not sufficient for clinical cure the interstitial implantation of radium is necessary.

Skin cancer unless extremely advanced or unless the tumor bed has been altered by repeated recurrences should be treated preferably with radium. In all except the most superficial lesions heavily filtered radium at a distance of from 1 to 3 cm gives the best results.

At the Memorial Hospital carcinoma of the mucous membranes of the mouth, nose and throat is treated by external irradiation with radium or the X rays or both over the primary growth and the implantation of gold filtered radon seeds into the primary tumor. The cervical nodes unless palpably involved are treated by external irradiation. The palpably involved node of the adult type of epidermoid carcinoma when unilateral and with an intact capsule is treated by complete unilateral dissection plus the implantation of radium into the wound in such a way that all suspicious areas will be heavily irradiated. Unilateral nodes in which the tumor has extended through the capsule and all bilateral nodes are treated by surgical exposure under local anesthesia and the implantation of radon seeds. Metastatic nodes in undifferentiated types of carcinoma are treated by irradiation only.

Extrinsic laryngeal cancer which is always inoperable is treated by external and interstitial irradiation. In a few highly radiosensitive types the X rays alone may cause complete regression. Intrinsic laryngeal cancer although operable in a certain percentage of cases is treated preferably with radium at the Memorial Hospital. External laryngotomy is done and the radon implanted directly into the growth.

In the treatment of cancer of the cervix of the uterus radium is the agent of choice. In operable cases of cancer of the corpus hysterectomy is the best procedure.

Cancer of the bladder is treated preferably by suprapubic cystotomy with direct implantation of radon. In cancer of the prostate radium treatment produces greater palliation with less hazard than operation.

Questionably operable cases of cancer of the breast and breast cancer in the aged are treated better by irradiation than by operative procedures. The palliative effects of irradiation are probably greater in breast cancers than in most others.

The interests of the patient with cancer are best served when the surgeon working in cooperation with the pathologist and the physicist is thoroughly familiar with irradiation and therefore able to combine the necessary operative treatment with irradiation therapy. C. D. HAAGENSEN, M.D.

De Quervain, F. Intra Abdominal Radium Surgery (Zur intra abdominalen Radiumchirurgie). *Deutsche Zeitschrift für Chirurgie* 1930 cccv 387.

Inoperable sarcoma of the retroperitoneal tissue and its lymph nodes and sarcoma of the omentum mesentery and spleen can be treated successfully by the intraperitoneal insertion of radium needles. An attempt at such treatment is

justified also in cases of tumor of the kidney growing toward the abdominal cavity.

The tumor is exposed through the abdominal cavity and radium capsules with long guide threads are inserted into it. The guide threads are brought out through the abdominal wall with the help of drains if these seem desirable and after a sufficiently long period of activity—from three to even days according to the variety of tumor—the radium is drawn out by means of the threads. If necessary the treatment may be repeated several times at intervals of from six to eight weeks.

In the case of a fifty seven year old man with a sarcoma in the left hypochondrium which was larger than a man's head complete disappearance of the tumor was obtained and five years later the patient was in good health. In the case of a thirty seven year old man with a large glandular metastasis from a seminoma near the spine the tumor disappeared completely under treatment with radium needles plus deep roentgen irradiation and after fourteen months the general condition was good. E. KOENIG (Z).

## MISCELLANEOUS

Regaud, C. The Radiophysiological Principles of the Radiotherapy of Cancer (Sur les principes radiophysiques de la radiothérapie des cancers). *Acta radiol.* 1930 xi 455.

In man there is a radiophysiology common to normal and cancerous tissues which is in contrast to the radiophysiology of vegetable cells, bacteria and the ova of lower animals.

Irradiation acts in two ways on tissues which are more or less sensitive: (1) by exerting a direct effect on the more sensitive cells (of value in the treatment of malignant tumors) and (2) by exerting an effect on the vasculoconnective tissues which nourish these cells (of value in the treatment of chronic inflammations and as palliative treatment of cancer).

The radiosensitivity of both normal and cancerous cells is dependent upon multiplication of the mother cells (secretory function is antagonistic to radiosensitivity).

Ideal radiotherapy of cancer utilizes the favorable interval between the radiosensitivity of the cancerous tissues and that of the normal tissues. Irradiation extending beyond the margins of serious lesions of the connective tissue and vessels may be followed by early or late necrosis.

There is no single dose which is curative of all carcinomata or all sarcomata. The variations of radiosensitivity are dependent upon the histophysiological characteristics of the tumors. Efforts are being made to modify the radiosensitivity of tissue artificially. Time is an important factor in radiosensitivity. When the treatment is divided and spread over a long period of time the therapeutic interval of radiosensitivity is decreased whereas when the treatment is given over a period of moderate length the therapeutic interval of radiosensitivity

is increased. This has been demonstrated by recent experiments on the testicle of the rabbit. There are cancers which, as regards the factor of time, behave like the fertile seminal epithelium.

In the Radium Institute of Paris there has been a tendency since 1920 to prolong the time of treatment both in roentgen therapy (Coutard's procedure) and in radium therapy. The results have shown a decrease in the local and general reaction and improvement in the effect of the treatment.

Radiophysics also demonstrates that there are many gradations between entirely electric radiotherapy and diffusely caustic radiotherapy followed by radionecrosis of the region treated.

Lambert P. Anæmias Caused by the Roentgen Rays and Radioactive Substances (Lancet, 1921, p. 116).  
Rebiger D. 1930, 63.

In several countries examination of the blood of workers of the roentgen rays and radioactive substances has shown that many such workers developed changes in the blood picture commensurate with the degree of their exposure. The earliest signs usually manifest leucopenia with an actual decrease in the proportion of polymorphonuclears and a relative increase in the proportion of lymphocytes. Occasionally there is an associated eosinophilia and an absolute mononucleosis without a leucopenia.

As a rule the red cell count is not changed. However if the exposure is sufficient anæmia develops.

Rarely erythrocytosis results. Poikilocytosis and anisocytosis have been reported infrequently.

Studies of the blood of irradiated patients do not entirely agree, but Lambert concludes that a decrease in the red cells which only exceptionally exceeds 1,000,000 is the usual result of irradiation of patients who have no disease of the hæmatopoietic system such as leucæmia.

Twenty-seven cases in which the blood changes resulted fatally have been reported. In 5 cases they were caused by the roentgen rays and in 22 by radioactive substances. One of the earliest victims was the French radiologist Dominici. The disease usually takes the form of a progressive anaplastic anæmia which terminates fatally in from three to six months. Bleeding from the gums is often observed. The accompanying leucopenia is characterized by almost complete absence of polymorphonuclears, being therefore a truly agranulocytic syndrome.

Two cases of lymphatic leucæmia and 4 cases of myelogenous leucæmia developing in workers with the roentgen rays or radioactive substances have been reported.

Treatment by transfusion and other measures has proved ineffective in checking the disease. Lambert advises frequent periodical examination of the blood of workers with the roentgen rays and radioactive substances.

The article is supplemented by an extensive bibliography. C. D. H. ACROST, MD.

## MISCELLANEOUS

### CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Desjardins A U Irradiation as a Means of Differentiating Certain Varieties of Tumors *Med Clin North Am* 1930 vii 619

Numerous and extensive experiments on animals and abundant clinical evidence have established the fact that every variety of cell in the body and every organ or structure composed largely of one variety of cell has a specific sensitiveness to roentgen and radium rays. The findings of many investigators have shown conclusively that the most sensitive cells in the body are the lymphocytes in the spleen, lymph nodes, intestinal lymph follicles, bone marrow, circulating blood and thymus. Next to the lymphoid tissues in sensitiveness are the cells of the basal epithelium of the seminal tubules and ovarian follicles. All other cells of the body likewise have a specific radiosensitiveness, each variety reacting to a given dose of roentgen or radium rays in a characteristic manner and at a characteristic rate. Knowledge of the specific sensitiveness of different cells often enables the expert radiologist to distinguish certain tumors by the rate and degree of their regression after exposure to the rays.

To those who are unfamiliar with the influence of irradiation on normal tissue this doctrine of the specific sensitiveness of cells may appear revolutionary, but its validity with reference to the more sensitive kinds of cells can be demonstrated at any time.

Microscopic examination by a competent pathologist is justly recognized as the most accurate means of identifying the character of tumors.

The neoplasms most readily identifiable by the characteristic and exceptional sensitiveness of the lymphocytes of which they are largely composed are those which develop in the lymphatic or lymphoid structures generally. The reaction of such tumors is usually so great and corresponds so closely to the reaction of normal lymphocytes that irradiation constitutes a valuable therapeutic test and makes possible the recognition of such tumors even without consideration of their clinical characteristics.

Desjardins reports a case of lympho epithelioma originating from the gastro intestinal tract. The recognition of the tumor was based mainly on its special reaction to roentgen irradiation.

The only tumor which approaches the lympho blastoma in susceptibility to irradiation is the pure embryonal carcinoma or seminoma of the testis, but the clinical features of the two kinds of tumor are so well defined that confusion is seldom possible. Desjardins reports such a tumor which regressed

completely following a course of roentgen irradiation.

Another tumor in which the reaction to irradiation is sufficiently characteristic to serve as a valuable diagnostic sign is the true benign giant cell tumor of bone. The diagnosis of giant cell tumor involves a grave responsibility, because certain neoplasms of this type contain malignant elements.

Most malignant tumors of bone are only slightly or moderately susceptible to irradiation. Few such tumors are ever cured permanently by any method of treatment. Nevertheless in this group also the reaction to roentgen or radium rays may sometimes help in establishing the diagnosis. In a case reported, roentgenographic examination of the lumbar spine and pelvis revealed a tumor involving and destroying much of the left ilium which appeared to be a giant cell tumor or an endothelial myeloma. Following a course of irradiation all of the symptoms disappeared and except for occasional slight soreness in the back and shoulders the patient's condition has since been excellent.

In conclusion the author says that the expert radiologist can render valuable assistance in the recognition of certain kinds of tumor and that such assistance is not confined to the varieties of neoplasm which have been described.

Ewing J Problems of Melanoma *Brit M J* 1931 ii 852

The nevus cell is derived from and belongs to the peripheral sensory nerve end organs. It is uncertain whether this cell is neuro ectodermal or mesoblastic. The nevus cell in the nerve nevus produces chromatophores. The adult chromatophore is able to exist and function independently of the nevus cell.

In the epidermis there are slumbering unpigmented and wandering pigmented chromatophores and probably also other specialized cells similar to nevus cells belonging to the intradermal nerve end apparatus. The cells of the latter type may be the Merkel Ranvier tactile corpuscles.

In the development of melanoma exactly the same processes seem to occur and the same relations between nevus cells and chromatophores seem to be exhibited in the epidermis as in the nerve nevus of the derma and subcutaneous tissue.

The theory of the epithelial origin of the nevus cell and chromatophore has always been seriously questioned by most pathologists and in the light of the new evidence has become less acceptable. All of the appearances in the epidermis suggesting the active participation of epithelium in melanoma may be referred to the growth of specialized cells belonging to the nerve end apparatus. However the



histological evidence in this field is complex and inconclusive. Melanoma has important relations to neurofibromatosis. This fact supports the view that the cells in melanoma are of neural origin and is difficult to reconcile with the theory of epithelial origin. MANUEL E. LICHTENSTEIN, M.D.

Treese, N. and Pack, G. T. The Development of Cancer in Burn Scars. An Analysis and Report of Forty Four Cases. *Surg. Gynec. & Obst.* 93: 1749

From a study of 34 cancers developing on burn scars which were found among 2,500 skin epitheliomata the author draws the following conclusions:

Though females are more liable to burns at the extremes of life (probably because of female attire) the incidence of cancer developing in burn scars is higher in males because in males burns are more frequently subjected to irritation from infection, trauma and neglect. Epitheliomata developing in burn scars occur in regions where burns are frequent as on the scalp and extremities and here trauma or motion may be superimposed as on the elbow and in the groin rather than in regions of the body where skin epitheliomata are common. Sometimes in older persons with atrophic keratotic skin and frequently in quite superficial burns cancer develops within a year after the injury. This is the so-called acute wound cancer.

The usual chronic scar cancer occurs years after the burn (the age of the scar is more important than the age of the patient) usually in the tight dense scar which is abraded by relatively slight injury. It is usually of the squamous type.

Fibrosis especially about the blood vessel is apt to interfere with nutrition and poor nutrition favors ulceration. The repeatedly regenerating integument becomes progressively inferior. Persistent stimulation to the marginal epithelium favors repeated growth and repair and constant frustration may lead to loss of tissue, estrangement and eventually to cancer.

Cancer begins the margins of the ulcer usually as a fat-nitrated infiltrating and ulcerating growth with late invasive tendencies. The cells usually show a differentiation of Grades 1 and 2. Growth is slow and the formation of visceral metastases occurs late.

Burns should be cared for to prevent infection. Rapid epithelialization should be promoted and skin grafting resorted to early where repair is slow or an excess of scar tissue will develop. If persistent ulceration or degenerative changes encourage dissection of the scar should be done.

As a rule small basal cell lesions may be treated satisfactorily though they filter radium at a distance. In four cases of latent scar cancer and four of acute wound cancer a cure was obtained by irradiation alone and in two the radiation gave a good result after surgery had failed. If the lesion is radiosensitive surgical intervention must be radical and preceded by irradiation.

HARRIS, C. SALT, S. R. M.D.

## GENERAL BACTERIAL PROTOZOAN AND PARASITIC INFECTIONS

Bentnall, C. G. The Medical Treatment of Anthrax. *Lancet* 93: cc 174

The author reviews the literature on serotherapy of anthrax, discusses the use of salvarsan as an adjuvant and the injection of 10 c.c.m. of serum at the site of the lesion and presents a table comparing eleven cases treated surgically with eleven cases treated medically. These cases showed a seasonal increase in the incidence of the infection in the months from December to May. In the surgically treated group the average stay in the hospital was thirty-two and eight-tenths days, whereas in the medically treated group it was nine days. A cure was obtained in eight of the surgically treated cases and in nine of the medically treated cases. In all of the cases anthrax bacilli were found in smears and cultures during the treatment. The serum was usually given intravenously but in some cases intramuscular or intrathecal injection was substituted for or combined with intravenous injection.

The eleven medically treated cases are reported briefly. These showed that the bacterial content of the lesion is not a reliable index of the effect of treatment and that the term "pustule" is a misnomer when applied to the site of infection in anthrax. The medical treatment consisted of the administration of from 60 to 200 c.c.m. of anthrax serum and of from 0.6 to 0.9 gm. of stabilarsan daily.

W. N. ROWLEY, M.D.

Jopson, J. J. and Eiman, J. The Serum Treatment of Bacteremia Due to the Hemolytic Streptococcus. *A.S.G.* 193: c 9

The authors summarize their experience with the use of polyvalent anti-streptococcus serum in the treatment of bacteremia. They differentiate two types of bacteremia: the shower type and the massive type. In the former positive blood cultures are obtained either before or immediately after surgical intervention for an acute primary focus, such as drainage of an infected hand or the removal of infected thrombi from the lateral sinus. Cultures on blood agar plates show but few colonies of organisms. In such cases the natural defense mechanism is usually capable of destroying the bacteria without further therapeutic measures. In the latter blood cultures reveal hundreds of colonies of bacteria per cubic centimeter of blood and surgical treatment of the primary focus does not lead to abatement of the symptoms. Under such conditions of overwhelming infection the natural defense mechanism is rapidly exhausted.

Tables summarizing forty-three cases of bacteremia are presented. These show that of twenty-four patients who received no serum or only very small amounts of serum (less than 100 c.c.m. in four cases) five (twenty-one per cent) recovered and nineteen (79 per cent) died, whereas of a similar group of nineteen who received from 100 to 750 c.c.m. of

polyvalent anti streptococcus serum fifteen (79 per cent) recovered and only four (21 per cent) died. All of the fifteen patients in the second group who recovered presented the massive type of infection.

The authors have found that serum and chemotherapeutic agents have no beneficial effect on primary or secondary foci of infection. Therefore if such foci are demonstrable and accessible they must be treated surgically.

The best results of anti streptococcus serum are obtained when the serum is administered early and in sufficient quantities intravenously before the development of secondary foci or thrombi and marked degeneration of the parenchymatous organs.

MANUEL E. LICHTENSTEIN M.D.

D Aunoy R. and Beven J. L. Systemic Blastomycosis. *J. Lab. & Clin. Med.* 1930 xvi 124.

The cases of systemic blastomycosis seen at the Charity Hospital, New Orleans, in the period from 1906 to 1920 are tabulated and the pathological findings in a typical case are described. Because of the similarity of the gross and microscopic lesions to those of tuberculosis demonstration of the causal agent is necessary before a positive differential diagnosis can be made. In the cases reviewed pulmonary lesions comparable to those of Miller's Types 1, 2 and 3 of tuberculous bronchopneumonia were found.

J. FRANK DOUGHTY M.D.

Acton H. W. and Rao S. S. Factors Which Determine the Differences in the Types of Lesions Produced by *Filaria Bancrofti* in India. *Indian M. Ga.* 1930 lxx 60.

The manifestations of filarial infection in India vary considerably. In Cochin elephantiasis is the most common sequela, whereas in Allahabad the chief signs of the infection are lymph varix and chyluria. In Cochin, where the infection is most frequent, the country is low and flat, the rainfall is heavy, the humidity is high (81 per cent), mosquitoes (*Culex fatigans*) are very numerous, and the length of the mosquito breeding season is longer than in Allahabad. The *Culex fatigans* is believed to be the transmitter of filarial infection in India.

The clinical manifestations of filariasis are dependent upon the anatomy of the lymphatic system draining the region bitten by the mosquito. In an area of the country in which the infection is only moderately prevalent the intensity of the infection is moderate and the migration of the embryos into the lymphatics is not so heavy as in areas of the country in which the infection is more common. Irritation and blockage of the low lymphatic glands are comparatively rare. As a rule the blockage occurs in the lymphatics near the abdominal aorta; hence hydrocele is usually the earliest sign of the infection. Continued infection and irritation result in oedema of the legs.

M. HERBERT BARKER M.D.

# BIBLIOGRAPHY of CURRENT LITERATURE

NOTE—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

## SURGERY OF THE HEAD AND NECK

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The effect of thyroidectomy on the function of the pituitary gland  
T m n a l l g a W T C n J O k l a h m  
S e t M A 230 x 3 9

The effect of thyroidectomy on the function of the pituitary gland  
C l i t f t h p t t p h s L l r l o c  
R y s M d l d 93 25 [217]

The effect of thyroidectomy on the function of the pituitary gland  
H d t y f l p m f H L L t G A t m d  
S d 93 l x x 5 0

The effect of thyroidectomy on the function of the pituitary gland  
U l t r a l f a l p m t t r t m n t B B S r a  
S e m a n m d 930 1 1

### Spinal Cord and Its Covering

Acromioclavicular joint  
C y n k 33 03

The effect of thyroidectomy on the function of the pituitary gland  
Th c e t d t m t o f p o l m y l t u t h  
p p l y t a g C O i L T a S t t J M

The effect of thyroidectomy on the function of the pituitary gland  
33 x 5 7

The effect of thyroidectomy on the function of the pituitary gland  
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n t h M l 35 5

The effect of thyroidectomy on the function of the pituitary gland  
Th d i g i f t u m n l i t s p i d H  
W W M A J A m M A 33 308

The effect of thyroidectomy on the function of the pituitary gland  
M d l l y t f t h l o i W e r t x d  
B o u r l y h 93 67

The effect of thyroidectomy on the function of the pituitary gland  
A m k a b i m p h i g f h a g f t h t b r f l  
l g e t e n l m n t m y f t u m o f i l p i l c l

The effect of thyroidectomy on the function of the pituitary gland  
A f S E L S B R C A c t f t h p C h 93 3

### Peripheral Nerves

The effect of thyroidectomy on the function of the pituitary gland  
The act f a i t o n f r m d u m n c d l e o n e r v s  
D I G o r M d J A u s t r l 1930 631

The effect of thyroidectomy on the function of the pituitary gland  
A c t b t n t o t h e t u d y o f c e d g p t t r m a t i c  
n e u t s f t h e t r m i t l L e P e m e d P a [218]

The effect of thyroidectomy on the function of the pituitary gland  
193 xx 1 37

The effect of thyroidectomy on the function of the pituitary gland  
I j u y t h b r a h l p l u W H O G I L I F P r o c  
R y S o c M e d L o n d 930 x 33

The effect of thyroidectomy on the function of the pituitary gland  
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T a r l y I n t e u a t M A R S C H E R d W B R  
M A N M e l J & R e c 930 1 460 [218]

The effect of thyroidectomy on the function of the pituitary gland  
I n t a c a l p i a l n y c t n n t h t e t m n t f e  
t e W f v a L n e t 930 c 5 [218]

The effect of thyroidectomy on the function of the pituitary gland  
L a t e u l r p a l s y f o l l o w g l b o w j e s R J W I T E  
S o t h M J 930 926

The effect of thyroidectomy on the function of the pituitary gland  
I f a t n g f s f t h f o o t b y s t c h g f t h p t  
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A d c o n o f t h p l y f y d p h r m c l g y f t h e  
e t t n e j t e m C W R A S A J O k l a h m

The effect of thyroidectomy on the function of the pituitary gland  
S t a t e M A 93 xx 1 363

The effect of thyroidectomy on the function of the pituitary gland  
S t u d e s o f t h e e t i y f t h e l u m b s y m p a t h e  
s y s t e m J J M a r v d W J f S c o r r 4

The effect of thyroidectomy on the function of the pituitary gland  
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Th a n a t M l u f a m e t a l f g e r y f t h s y m p a  
t h e t y t e m A W S G L o h e l y c h r a g y n k [219]

The effect of thyroidectomy on the function of the pituitary gland  
93 66

The effect of thyroidectomy on the function of the pituitary gland  
S y m p t h m y h y t r l e n l P L N i  
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The effect of thyroidectomy on the function of the pituitary gland  
A g r y f t h s y m p t h r v u s y s t e m d e h o e  
t h t C E A T A S n t h t M e d 93 1 518

The effect of thyroidectomy on the function of the pituitary gland  
C l c a l n t l t t h e g y f t h s y m p a t h  
y t e m T h t a t m t f a i g u t G

The effect of thyroidectomy on the function of the pituitary gland  
I t A h t a l d c h r 9 2 88

The effect of thyroidectomy on the function of the pituitary gland  
Th l t s y m p t h t y t h e t e t m n t f t b e t c  
S J S E N I S A h f k l i C h 193 c l 175

The effect of thyroidectomy on the function of the pituitary gland  
Th f t e f m l f t h s y m p t h t e g l t h e  
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The effect of thyroidectomy on the function of the pituitary gland  
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The effect of thyroidectomy on the function of the pituitary gland  
Th l t o f r e t n f s y m p t h e t e g l t  
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I C l A T R A A W A S A d P S I f e c h A n  
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The effect of thyroidectomy on the function of the pituitary gland  
Th d n c l l f t h h l d n t h r b r s p l  
d f M T C A R M e d d I a r l n 9 1

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The effect of thyroidectomy on the function of the pituitary gland  
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A c h f l C h 193 c l 998

The effect of thyroidectomy on the function of the pituitary gland  
S g e y A g l p e t u t o f g r l d p l  
u e M K u e a d O n o m A V o l I f t

The effect of thyroidectomy on the function of the pituitary gland  
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The effect of thyroidectomy on the function of the pituitary gland  
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The effect of thyroidectomy on the function of the pituitary gland  
I n d c t f t h m s b y b t f h e t g t h r o g h  
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W h l 9 9 464

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m t w th p e moth rax f ur ca es I BE CONVEY nd  
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A cl ncal nd rad graph c diag o s of oloma o sp  
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A heal d p rative case of t r f the h t r m the ce  
t tendo f the diaphragm B RÁCZ Gyógyás at 93  
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## GENITO URINARY SURGERY

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## SURGERY OF THE BONES JOINTS MUSCLES TENDONS

### Conditions of the Bone Joints Muscles Tendons etc

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## SURGICAL TECHNIQUE

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# International Abstract of Surgery

*Supplementary to*  
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# INTERNATIONAL ABSTRACT OF SURGERY

APRIL 1931

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Rankin F W and Palmer B M Postoperative  
Parotiditis Treatment Without and With  
Radium *Ann Surg* 1930 xlii 1007

Having noted the beneficial effects of radium packs in the early stages of infection of the parotid gland Rankin and Palmer reviewed all of the seventy eight cases of parotid infection which have occurred in the Mayo Clinic in the last four years in order to compare the effects of the various therapeutic agents employed. Radium was used in twenty of the cases.

The incidence of parotiditis after general surgical procedures including operations on the upper part of the gastro intestinal tract and small bowel is relatively low. In twenty of the seventy eight cases reviewed the condition followed an operation on the colon or rectum.

There are five theories as to the nature of post operative parotiditis. According to one the condition is a pyæmic phenomenon due to embolism of the parotid vessels with a septic clot derived from the primary focus of infection. According to another it is a parenchymatous degeneration of the gland due to hyperpyrexia. According to a third it is an infection of the gland resulting from an unsuccessful attempt to excrete toxin formed by the organisms of the primary disease. The fourth theory is that the condition develops sympathetically after operations on the generative organs. According to the fifth it is produced by direct extension of micro organisms along Stenson's duct from the mouth.

In the cases reviewed especially those in which operation was performed on the colon there were many factors unfavorable to surgical intervention and favorable to complications. These were advanced age debility dehydration arteriosclerosis and infection of long standing.

The only sign which is pathognomonic of suppuration of the parotid gland is fluctuation. When this appears the gland should be lanced. Unnecessary drainage of the gland and perhaps spread

of the infection is frequently avoided by waiting for a definite sign. In many cases suppuration may be prevented by the application of hot fomentations or ice.

By using radium particularly by applying it within one or two hours after the beginning of the swelling in the region of the parotid gland Rankin and Palmer have been able to decrease the morbidity and mortality of parotiditis appreciably by reducing the incidence of suppuration and absorption. For the best results the radium must be applied as soon as the first symptom appears. The technique of treatment varies somewhat with the severity of the condition but a large dose is not necessarily more effective than a dose of medium size.

Of the twenty cases treated with radium which are reviewed by the authors surgical drainage was necessary in only two. In the fifty eight cases in which radium was not used there were twenty three deaths whereas in the twenty cases treated with radium there were only four deaths and two of these were due to pyelonephritis and uræmia respectively.

### EYE

Spratt C N Intra Ocular Foreign Bodies 1:  
*J Ophth* 1930 xlii 1079

The author reviews 101 cases of intra ocular foreign body seen by him in a period of twenty five years. In diagnosis the magnet test has been found unreliable. Sweet's method of localization is the best but if the first roentgenogram is negative roentgenograms should be taken from various angles as the foreign body may be masked by heavy bone. Foreign bodies in the vitreous are usually removed best by the posterior route through a scleral incision.

SAMUEL A DURR M D

Smith H G Barkan H and Barkan O Vaso  
motor Glaucoma 1n *J Ophth* 1930 xlii 1076

It has been demonstrated experimentally that in tra ocular pressure varies directly with blood pres

sure Kronfeld concluded from his experiments that the amount of inflow of aqueous depends upon capillary blood pressure and the permeability of the limiting membrane both of which are intimately related to the caliber of the intra ocular vessels. If this theory is correct it is obvious that vasomotor disturbances may precipitate acute attacks of glaucoma and in certain persons a chronic fluctuating form may be expected.

The authors report the case of a man thirty six years old who first sought treatment in 1924 for poor vision and attacks of headache. Examination revealed a central corneal opacity in each eye probably from old interstitial keratitis. Vision with myopic correction was  $3/20$  and  $1/10$ . The fields were normal and the disk showed no excavation but tension was 42 in each eye. The patient complained of inability to read for over half an hour and of blurring of vision associated with headache and rainbow rings which occurred after meals during excitement and when he put his head back in a barber's chair. While resting his head on his right hand he noticed a flushing of the right side of his face.

Treatment first with adrenalin and later with levo-glucosan caused great improvement. These drugs are vasomotor stimulants. SMEL & DUNKER MD.

Holth S. Idencltis Cum Iridotomia Meridiana II. An Operative Method of the Acute and in Chronic Primary Glaucoma. *J. Ophth.* 93 83

The author states that he abandoned the three methods of anterior sclerotomy—the fist punch for caps operation, the Ell of trephination and the tangential punch forceps sclerotomy—because all of them cause an immediate and sometimes sudden decrease of tension and after several years the defect in the sclera may be completely obliterated by solid and impermeable scar tissue the tension being then often raised again. After his iridencleisis conditions are reversed. In 50 per cent of the cases the tension becomes at once and permanently normal but in 35 per cent miotics must be used for from two weeks to six months after the operation. The final filtering scar will nearly always last a lifetime. In 15 per cent of the cases the continued use of miotics which are useless before operation will keep the tension normal and render reoperation unnecessary. The author has never known of late infection to develop in sealed eyes after iridencleisis. Enroth has shown that cataract may occur relatively early after Ell of sclerotomy. Holth has observed this result following his operation only in far advanced cases of cataract. After cycloclisis the possibility of cataract should always be kept in mind.

Holth describes his operation in detail.

LEUE L. McCoy M.D.

Duke Elder W. S. Tl Nature of the Vitreous Body. *B. J. Ophth.* 93 5 pp

The author presents evidence which suggests that the vitreous body is a hydrophilic elastic gel formed

by the physical combination of two special protein constituents each with a specific function which are elaborated by the surrounding ectoderm and the common intra ocular fluid which dissolves from the capillary blood and precipitates these protein constituents. The reactions of the gel to changes in its environment and internal economy proceed along physicochemical lines according to the conditions which govern the behavior of gels in general. As the gel is a cell product its reaction to metabolic or toxic disturbances is passive. It will respond to alterations in its environment or internal economy by turgescence and deturgescence. Turgescence causes ocular hypertension and deturgescence causes hypotension. Macroscopically the vitreous body has the appearance of a gel but microscopically if it is examined in as normal a state as possible it appears structureless.

Almost invariably the surface layer of a colloidal solution undergoes condensation hence the so-called hyaloid membrane. Anatomically a membrane does not separate the vitreous and retina.

The zonule was once considered to be a membranous structure closely related to the vitreous. Later it was described as a system of fibers. Today the first view is held to be most correct.

The vitreous gel is in a very unstable state of dynamic equilibrium and is readily destroyed by the slightest mechanical insult.

The vapor pressure of the vitreous shows it to be a reversible elastic hydrophilic gel presenting no opacity point.

Slowly controlled diffusion in the vitreous accounts for the formation of large and well formed crystals of substances crystallizing with difficulty such as fatty acids which may produce synchysis scintillans.

In the horse the chemical composition of the vitreous body, aqueous humor and blood serum is as follows.

THE CHEMICAL COMPOSITION OF THE VITREOUS BODY, AQUEOUS HUMOR AND BLOOD SERUM OF THE HORSE

|                      | (Grams per 100 ccm) |       |       |      |
|----------------------|---------------------|-------|-------|------|
|                      | V                   | Aq    | Serum |      |
| Wt                   | 99.6813             | 99.69 | 93.3  | 38   |
| Solids (dried 100°C) | .087                | .0869 | 9     | 536  |
| Total protein        | .652                | .2    | 7     | 3692 |
| Albumin              | .0077               | .0078 |       | 9557 |
| Globulin             | .15                 | .03   | 4     | 435  |
| Mineral              | .1                  |       |       |      |
| Reducible            | .50                 |       |       |      |
| Fibrinogen           | T                   | T     | I     | t    |
| Immunoglobulins      | T                   | T     | P     | e    |
| Fibrin               | T                   | T     | P     | e    |
| Iron                 | .007                | .004  | 13    |      |
| Cholesterol          | .0005               | T     | (?)   | P    |
| Non-protein nitrogen | .264                | .236  | 0     | 39   |
| Urea                 | .3                  | .68   |       |      |
| Ammonia              | .9                  | .9    | 0     | 7    |
| Creatinine           | .03                 | .03   |       | 35   |
|                      | .9                  | .5    |       | P    |

|                        |        |        |        |
|------------------------|--------|--------|--------|
| Creatinine             | 0.001  | 0.002  | 0.002  |
| Sugar                  | 0.0773 | 0.0983 | 0.0910 |
| Sodium                 | 0.2731 | 0.2787 | 0.3351 |
| Potassium              | 0.0192 | 0.0189 | 0.0201 |
| Calcium                | 0.0058 | 0.0062 | 0.0101 |
| Magnesium              | 0.0020 | 0.0026 | 0.0028 |
| Chlorine               | 0.4768 | 0.4371 | 0.3664 |
| Phosphorus (inorganic) | 0.0031 | 0.0033 | 0.0030 |
| Sulphur (inorganic)    | 0.0062 | 0.0061 | 0.0038 |

The composition of the vitreous alters in the same way as that of the aqueous but the changes are slight. As colloids diffuse in the gel with difficulty the vitreous does not readily show a high protein concentration when the aqueous is withdrawn.

The changes in the vitreous take longer to attain a maximum and much longer to resolve again to normal because diffusion in a gel is slower and shows more inertia than diffusion in a sol.

The vitreous was first believed to be derived from the mesoderm. Later it was thought to come from the ectoderm and to be secreted by the retina. Still later its source was thought to be the lens which is also ectodermal. According to a fourth theory it is of mixed origin. Today it is believed to be essentially of ectodermal origin—to be formed originally from the neural and surface epithelium and later from the retinal glial elements.

The author concludes that the intra ocular fluid dialyzes from all of the vascularized tissues of the eye but especially from the ciliary body.

Experimental and clinical evidence indicates that the vitreous depends for its nutrition largely upon the choroid. The fluid spreads through the vitreous by diffusion and escapes by Schlemm's canal and the vitreous fluid by the optic nerve head.

The vitreous contains four proteins—serum albumin, serum globulin, mucoprotein and residual protein. The iso electrical points of the first three are albumin pH 4.7, globulin pH 5.62 and mucoprotein pH 2.5. The iso electrical point of the residual protein is unknown.

Changes in turbescence are

1. An acid zone (pH 1 to 4). At pH 3.5 the vitreous weight increases 42.55 times.
2. The iso electrical zone (pH 4 to 6).
3. The neutral zone (pH 6 to 8).
4. A zone of instability (pH 8 to 9).
5. A highly alkaline zone (pH 9 to 9.5).

Evidence shows that in certain cases glaucoma is due to turbescence. The swelling is probably due to faulty metabolism of the vitreous.

Breakdown of the vitreous is caused by disturbances of filtration, removal of the normal environment and the influence of acid and alkaline solutions. These factors cause shrinkage of the gel which then becomes penetrated by an ever thickening feltwork of strands, fibers and membranes. These factors therefore explain the occurrence of vitreous opacities in the presence of

1. Exogenous materials derived from cyclitis, choroiditis and retinitis.

2. Autogenous material from partial or complete breakdown of the gel. Hyalitis is impossible as the vitreous is a cell product and not a cellular tissue.

3. Retinal detachment caused by non support of the vitreous mass after it has liquefied or shrunk. Behind the detached retina a highly albuminous plasmoid fluid transudes from generalized dilatation of the ocular capillaries following hypotony. This accounts for a part of the detachment associated

Hæmatogenous constituents of the vitreous are

## I Colloids

A. Proteins (1) albumin (2) globulin. These are dialyzed from the blood stream.

B. Immune bodies (1) antibodies (2) agglutinins (3) bacteriolyins (4) hæmolysins and (5) complement fixation substances. The distribution of these constituents is affected only by their molecular size. They enter and leave the eye in very minute quantities. When their concentration is raised in the blood in highly immunized animals the vitreous may contain considerably more. Their concentration may be increased by an increase in capillary permeability.

C. Fats. Because of the non diffusibility these are present in very small quantities.

## II Diffusible constituents

A. Non ionized substances

B. Ionized salts

1. Cations (a) sodium (b) potassium (c) calcium and (d) magnesium
2. Anions (a) chlorides (b) phosphates and (c) sulphates

In all cases the vitreous and aqueous are strictly comparable in composition. They are formed by simple dialyzation from the capillary plasma.

Special non hæmatogenous constituents of the vitreous are

I. Mucoprotein. This occurs in the umbilical cord, cornea and vitreous and is transparent.

A. Chondroitin sulphuric acid. This occurs in the sclerotic as in other connective tissue and its function is primarily skeletal.

B. Mucotin sulphuric acid. This occurs in the cornea and vitreous body and maintains transparency.

II. Residual protein containing carbon, hydrogen, nitrogen, ash, potassium and sulphur.

The aqueous is poorer in colloids than the vitreous. Hence it is slightly more acid than the vitreous. Both the aqueous and the vitreous are more acid than the colloid rich blood plasma.

Because of the gel structure of its colloid constituents the vitreous has a very high viscosity. The conductivity of the aqueous filtrate is slightly greater than that of the vitreous filtrate because of the difference in the protein concentration. The vitreous is in osmotic equilibrium with the aqueous when the two are separated by a semipermeable membrane. Its osmotic pressure corresponds also to that of the capillary blood dialysate.



with neoplasms. In albuminuric retinitis it is probably associated with metabolic derangement in the vitreous certainly with general venous obstruction in the choroid and retina and sometimes with general oedema. Detachments in thrombosis of the orbital veins probably have a similar origin.

LESLIE L. MCCOY M.D.

Witmer W. H. C. nic Retrobulbar Neuritis  
A. I. Ophth. 93 87

In the diagnosis of a retinal neuritis a detailed family history is helpful. A complete examination should be made including in doubtful cases examination of the spinal fluid. A positive gold curve with a negative Wassermann reaction is highly suggestive of disseminated sclerosis. Frequent perimetric measurements are essential. While in some cases of disseminated sclerosis a retinal neuritis does not appear until late in others it is the condition that brings the patient to the physician. Therefore in cases of a retinal neuritis attributed to sinus disease or some other focus of infection disseminated sclerosis may develop later. Persons with disseminated sclerosis or Leber's disease are young and nervous and may have mental defects. The family history and the constant absolute central scotoma in Leber's disease are helpful in the differential diagnosis. The possibility of disease of the pituitary body must be borne in mind. When there are many possible sources of axial neuritis it is often impossible to determine which one is responsible.

The management of cases of axial neuritis consists in the removal of any manifest focus of infection and treatment of any cause of toxæmia that may be discovered such as syphilis, tuberculosis or diabetes. In chronic cases in which no source of infection can be found it is legitimate to explore the sphenoidal and posterior ethmoidal cells. In Leber's disease and disseminated sclerosis frankly infected sinuses should be drained and other foci of infection removed. For disseminated sclerosis there is little of specific therapeutic value to be suggested in the present state of our knowledge but a general hygienic regimen is important. In Leber's disease the patient is best helped by being told frankly of his condition and aided to face life with the prospect of impaired vision. Healthful employment is desirable. The patient should be told that he will not be blind and that at the age of fifty years he will probably be better able to adjust himself to the central blindness.

LESLIE L. MCCOY M.D.

### NOSE AND SINUSES

Aubin A. and M. duro R. The Pseudotuberculous Forms of Tertiary Syphilis of the Nose and Pharynx (Le f. m. a. p. s. d. o. b. u. e. d. i. s. y. p. h. i. l. i. s. t. i. e. d. z. e. t. d. p. h. a. r. y. n. x. ) t. f. i. n. i. d. i. s. g. l. 930 x v 85

Of all the manifestations of tertiary or delayed congenital syphilis the most common are lesions of

the nose and pharynx. In observing numerous cases the authors have been impressed by the considerable percentage of nasal lesions which present an aspect quite different from the standard descriptions. Usually the lesions in the nose are not diffuse infiltrations or gummata but resemble very closely lupus of the mucous membranes. In the pharynx on the contrary the gummatous form of lesion is the most common. However even this often resembles tuberculous granuloma of the milky type (Isambert's disease).

The classical luetic lesions of the nose are characterized by swelling, obstruction and pain. At first they are dry but with breaking down of the granuloma a foul discharge appears. This is coincident with the formation of sequestra. The initial stage of the disease is seldom seen. Once developed the gumma or diffuse infiltration located on the septum resembles a hæmatoma. It never involves the cartilage. Lesions on the inferior turbinate suggest a simple hypertrophy. According to the classical descriptions the broken down lesion resembles a punched out ulcer but in reality this aspect is almost never seen. The common lesion is the lupoid form resembling tuberculosis in appearance but being less torpid in its course. The lesion presents granulations and an irregular mulberry like surface and bleeds easily. The base of the ulcer is indurated and often shows the underlying bone (Lubet-Barbon).

The lupoid form of tertiary syphilis a little suggests the disease. There is no pain, no swelling of the nose and little obstruction. The patient suffers simply from slight but constant difficulty in breathing, an orlary mucopurulent discharge and sometimes thin crusts the removal of which causes slight bleeding. Examination reveals one or more ulcers with ill defined and irregular borders and a base covered with granulations the size of a pin head. Often the cartilaginous septum is involved but there is no exposure of cartilage or bone. This is the description of lupus but a difference is seen in the infiltration of the surrounding mucosa which is definitely real.

In the pharynx in which gummatous and ulcerative types of syphilitic lesions are most common the early stage of a filtration is seldom observed. Usually the patient presents himself with an ulcer of the classical type which shows a yellowish base and punched out scalloped borders and is surrounded by intensely hyperæmic mucosa. Pain is absent. As a rule there is only a single lesion but it is large and in healing it leaves white contractile cicatrice.

In the pharynx the pseudolupus form is rare but may very closely simulate lupus. The pseudotuberculous form of pharyngeal syphilis appears under the guise of Isambert's disease (milky tuberculosis of the mucosa). Multiple ulcers develop in successive crops as the result of the softening of milky gummata. The latter present themselves as minute yellow bodies the size of sago grains which are surrounded by a bright red zone of infiltration. The

ulcers become confluent and cause extensive losses of substance. New miliary gummata constantly appear in the vicinity. It is on the posterior wall of the pharynx, the soft palate and the nasal mucosa that syphilis reproduces most exactly the tuberculous granuloma of Isambert. While the presence of fever and the absence of surrounding zones of infiltration are supposed to distinguish tuberculosis from syphilis, the differences are often more theoretical than real.

Because the clinical symptoms of these special forms of syphilis are insufficient to differentiate them from tuberculosis, the authors discuss the various elements in the diagnosis in detail.

Diagnosis by means of biopsy is very delicate. In syphilis the lesions are well vascularized, the intima of the vessels is thickened and there is a perivascular infiltration. Although giant cells and epithelioid cells are frequently present, the regular arrangement of a tubercle is absent. Vessels often persist in the areas of necrosis. Sclerosis in the healing portions of the lesion is intense and appears early. Even when all of these findings are present, the diagnosis can never be more than presumptive.

Of great value is an intradermal injection of tuberculin. In tuberculosis this causes a local reaction.

The Wassermann is often positive but when it is negative should be ignored.

Of most value is the therapeutic test, provided it is applied vigorously. Only mercury, bismuth or arsenamine should be employed. The frequent practice of administering large doses of iodide is wrong because this drug simply causes infiltrations to disappear without being specific for syphilis.

The author concludes that the classical form of tertiary nasal syphilis is rare, that the Lubet-Barbon lupoid form is the most common, and that certain lupoid forms have not only the aspect but also the location, slow evolution and absence of bone destruction which are characteristic of lupus.

Several illustrative case histories are presented.

ALBERT F. DE GROAT, M.D.

Welle F. L. Asthma. *M. The Pathology of Allergic Tissue as Seen in the Nose and in the Accessory Sinuses*. *Arch. Otolaryngol.* 1930, 785.

One hundred and sixty specimens of tissue removed from the nose and accessory sinuses of 26 patients with asthma or vasomotor rhinitis or both were examined macroscopically and microscopically. The most interesting macroscopic observation was the presence of occasional pus pockets in membranes from the sinuses. Microscopic examination disclosed metaplasia of the epithelium, thickening of the basement membrane, edema or fibro of the tunica propria, active mucous glands, dilated serous glands and prominence of eosinophiles. The findings showed that a thickened mucous lining of a sinus may contain a pus pocket constituting a source of focal infection.

GEORGE R. McAULIFF, M.D.

Byrd H. and Byrd W. Sphenopalatine Phenomena. *The Present Status of Our Knowledge*. *Arch. Int. Med.* 1930, 141, 1026.

Dysfunction which can be arrested by anesthesia and injection of the sphenopalatine ganglion occurs in numerous sensory, motor, secretory, respiratory and circulatory diseases.

The anesthesia is accomplished by the topical application of 2 minims of 50 per cent butyn to the lateral wall of the nasopharynx posterior to the tip of the middle turbinate. A dysfunction is considered relieved if the relief is complete within five minutes after the application of the butyn and continues for four hours or more. If relief is no longer obtained after from six to a dozen topical anesthetics, injection of the ganglion with alcohol is indicated. While anesthesia does not give relief in all cases of a malady, it may be confidently expected to do so in at least one fifth of the cases.

GEORGE R. McAULIFF, M.D.

## MOUTH

Birkett G. E. Radium Treatment of Buccal Carcinoma. *Brit. M. J.* 1930, 1, 947.

The treatment of carcinoma of the mouth and tongue with radium is based chiefly on the principles of screening laid down by Dominici, Regaud, Failla and others, namely, the use of small intensities for a long period of time with elimination of the direct action of the beta rays rather than the use of high intensities for a short time. Since 1925 the author has used a screen of 0.5 mm. of platinum.

Radium irradiation has not only greatly improved the prognosis of buccal carcinoma, but also has greatly increased our knowledge of the disease. It has been proved conclusively that in buccal carcinoma metastasis occurs by embolism. Epitheliomata of the cheek, lip, floor of the mouth and anterior third of the tongue are highly differentiated for the most part and therefore radiosensitive. Carcinoma of the base of the tongue is embryonic and the most radiosensitive of all buccal carcinomata. The difficulty of obtaining results in lesions developing upon a chronic glossitis of syphilitic origin indicates that often these lesions require additional surgical treatment. However, because of the radiosensitivity of most mouth lesions, the treatment of such lesions seems to be mainly a problem of the insertion of radium.

Needles with an active length of from 30 to 50 mm. are preferred to five or six separate seeds. If bone is involved, irradiation alone will rarely suffice. Over treatment is thought to be better than under treatment. In mouth lesions, radium irradiation is a conservative method which, if successful, will restore function almost to normal.

In the treatment of the lymphatic drainage areas of the neck, the use of radium alone has not established itself as the method of choice. The needles should be inserted only after thorough exposure. Their insertion through the skin is not practical.

In operable cases block dissection is often the procedure of choice. In inoperable lesions the best procedure is thorough exposure followed by the insertion of radium needles throughout the area of secondary deposits. The needles should have an active length of from 0 to 50 mm. and should be placed 0.2 cm. apart. They should be left in position for eight days. From thirty to forty needles are usually required. For their removal the wound should be reopened under general anesthesia. If no glands are palpable in the neck, external irradiation with 1 gm. of radium should be given and the patient kept under observation.

In the cases reviewed by the author the incidence of apparent cure of the primary site was 38.7 per cent in 1926, 47.3 per cent in 1927, and 60 per cent in 1928. The incidence of apparent cure of both primary and secondary sites was 27.5 per cent in 1926, 36 per cent in 1927, and 45 per cent in 1928. It is evident therefore that the immediate results are improving. The improvement is ascribed by the author to increased personal efficiency. While the incidence of cure has been about equal in the cases treated with radium and those treated with surgery, it must be remembered that the cases treated with radium include inoperable as well as operable cases and that the mutilation and impairment of function are markedly less after radium irradiation than after operation. The author believes that we can look forward to improvement of results in buccal carcinoma from treatment by irradiation with the gamma rays.

A. JAMES LAMONT

Ba baro Cleft Palate (D on p l t ) B l l  
mém S t d h 93 l i 86

Ba baro reports a case of cleft palate which was treated successfully by muscular suture combined with suture of the nasal mucosa. In presenting Ba baro's report to the Society, VEAU takes occasion to reply to criticisms of his technique. He states that Lexer, who uses the Langenbeck method, criticizes his muscular suture of the soft palate but approves of separation of the aponeurosis which Veau has long abandoned. With regard to Veau's treatment of the hard palate, Lexer approves of the separation of the superior surfaces of the palatal layer, the uniting of the flaps, and the complexity of the sutures of the buccal mucosa. However, Veau says that according to statistics, Langenbeck's operation is followed by disunion in from 30 to 60 per cent of cases.

Veau admits that in his procedure the fibers within the loop of the metallic suture are compressed but he emphasizes that all the rest of the muscle is intact and able to function. He states that the immobility of the soft palate after Langenbeck's operation is due to sclerosis of the muscles, the result of cicatrization. As indicating that muscular suture is less dangerous to the mobility of the soft palate, he cites the fact that in 40 per cent of his total number of cases and 70 per cent of those of children operated

upon before the third year of age, absolutely normal phonation is obtained.

Veau has now rejected pharyngeal separation of the tissues and disinsertion of the palatal aponeurosis. He separates the palatal laminae but only temporarily. He believes it is better to have the nasal surface freed for a few seconds and the buccal surface freed for a few minutes than to have the buccal surface denuded permanently in an inevitably infected medium. Lexer does not accept the nasal suture.

After 200 operations, Veau greatly reduced the size of the rugine he uses. This is his only special instrument. He has often split the mucosa but has been able to suture it. Lexer says that when a double layer of sutures is used, recesses are formed where inflammation and suppuration may develop more easily than when a bloody surface is left and the secretions are eliminated. Veau performed 350 staphylorhaphies before he succeeded in suppressing these recesses in cleft palate with uterine flaps. He frees 1 or 2 buccal flaps, taking all of the palatal mucosa. These flaps, completely detached in front, are fitted to the roof of the region and closely attached to the layer of nasal mucosa. As the buccal edges come together so well, he no longer makes a median buccal suture but fastens the buccal flaps to the roof with 2 or 3 lateral stitches.

Veau attributes the vitality of the tissues at the edge of the buccal suture to the conservation of the great posterior palatine artery. PIER

Quick D. Radium and Surgery in Cancer of the Tongue B r M J 193 i 914

Cancer of the tongue is usually epidermoid in character and includes practically every histological type from the papillary squamous cell growth to the infiltrated tumor and from the fully differentiated adult type to the total anaplastic transitional cell type.

In the treatment of epidermoid carcinoma the combined use of irradiation and surgery offers several advantages. The degree of cellular differentiation revealed by the microscope shows clearly the reason for some of the failures of surgery and for some of the spectacular results obtained with radiation. Patients with highly malignant lesions are poor surgical risks. On the other hand, such lesions are highly radiosensitive. Fully differentiated tumors often yield better operative results and are ordinarily more radioresistant. The work of Martin and Quimby has shown that adult epidermoid carcinoma requires from 7 to 10 skin erythema doses throughout the tumor for permanent control of the neoplasm. The anaplastic growths quite often respond to from 13 to 6 erythema doses. Hence, external irradiation occasionally controls a few of the most radiosensitive growths of the tongue. Ordinarily, however, interstitial irradiation must be employed. Histological grading is of great importance in the determination of the initial dosage and as it is most easily carried out in epidermoid cancer, the treatment of this type

of lesion is becoming more accurate. Any aggressive treatment of cancer of the tongue should be preceded by rigid hygienic measures.

Since 1925 radon in gold capillary seeds with a filtration of 0.3 mm. have been depended upon entirely for the direct complete control or restraint of the tumor tissue. For the past three years external irradiation has been augmented by the use of a 4 gm. radium element pack. Surgical measures are used only for operable metastatic cervical nodes of fully differentiated carcinoma. During the first two weeks all cases receive external irradiation to a maximum intensity. This is followed immediately by treatment with gold seeds of radon with an individual value of about 2.0 mc. Necrosis rarely occurs except in uncontrolled local infection. Bulky growths are often cauterized a few days after the implantation of radon. The loss of irradiation sustained thereby is compensated for by the use of a greater initial strength of radon. Such cautery removal promotes surgical cleanliness, relieves pain, eliminates tissues which would otherwise break down, promotes healing and reduces deformity. Secondly infected bone calls for surgical removal. New growths at the base of the tongue are quite often carcinomata of the transitional cell type and exhibit a high degree of radiosensitivity.

The treatment of cervical nodes is of greater importance than that of the primary growth. Routine neck dissection of the neck is not practiced. High voltage X-ray irradiation is used routinely for economic reasons though heavily filtered radium is preferable. The determining factor is the equivalent quantity of irradiation. A good dose of the X-rays is better than a poor dose of radium. For irradiation of the neck, the use of both roentgen rays and radium is better than a comparable quantity of either agent alone. Ewing believes that the effect of roentgen irradiation is more pronounced on connective tissue while that of radium is more pronounced on cellular structures. If a palpable node of adult epidermoid carcinoma is present in the neck, complete unilateral neck dissection with the removal of all lymph node areas and the embedding of filtered radon seeds at suspicious points within the wound before closure is best. Inoperable metastatic lymph nodes are treated by surgical exposure and the implantation of seeds in the tumor bearing area. Nodes in which the capsule has been perforated by the disease are considered inoperable as are bilateral metastatic nodes in the neck. Metastatic nodes of anaplastic epidermoid carcinoma in the neck are treated with radium alone. The basis of the treatment is external irradiation combined with the embedding of filtered radon tubes.

Of an unselected group of histologically verified cases of cancer of the tongue treated in the period from June 1, 1917 to December 31, 1917, freedom from evidences of the disease was found at the end of 1929 in 40 per cent of those of involvement of the tip of the tongue, 1 per cent of those of involvement of the lateral border of the tongue, and 11 per cent

of those of involvement of the base of the tongue. Of the total number of patients, 20 per cent were still alive and 18 per cent were free from evidences of the disease.

In conclusion the author says that at the Memorial Hospital, London, radium is the agent of choice for the treatment of the primary growth of cancer of the tongue, but that the roentgen rays should be used unless very large amounts of radium or radon are available for external application. In the mouth surgery is employed in addition for access, drainage and treatment of diseased bone and in the neck for the treatment of adult epidermoid carcinoma. In the neck, surgical exposure plus the implantation of filtered radon is indicated in a variety of conditions considered inoperable. The methods selected depend upon the radiosensitivity of the growth as indicated by its histological structure. The interests of the patient are served best by close co-operation between the pathologist, physician, physicist and clinician.

A. JAMES LARKIN, M.D.

Soerensen J. The Surgical Treatment of Carcinoma of the Tongue (*Die chirurgische Behandlung des Zungencarcinome*). *Zi chr f Laryngol Rhinol* 1930, 11: 449.

The author states that while carcinoma of the tongue does not belong to laryngology, laryngologists are often called upon to make the first diagnosis not only of carcinomata in the posterior part of the tongue, but also of those in the floor of the mouth.

Soerensen divides carcinomata of the tongue into three groups: those of the buccal portion, those of the floor of the mouth, and those of the pharyngeal portion. Carcinomata of the movable part of the tongue are usually located on the border of the tongue opposite the first molar or the second bicuspid tooth. Early diagnosis is very seldom made, even when the lesion is in this easily accessible site. In a large material the author found only three cases in which the lesion was diagnosed early. He reports such a case. He states that in early cases it is immaterial whether radium or roentgen irradiation, diathermy or the knife is used for the destruction of the carcinoma, if the glands are removed also, a good result can always be obtained.

Unfortunately, cases of carcinoma of the tongue usually do not reach the surgeon until after the body of the tongue has been extensively infiltrated. The author formulates the rule that in excising the tumor the surgeon should keep 2 cm. distant from its edge. This necessitates transverse amputation of the tongue. The injury to function from the operation is not so great as to prevent the patient from resuming his occupation afterward. It is essential, however, that the stump be mobile.

Only small tumors can be removed by a simple operation in the mouth. In cases of large tumors which extend farther, special operative measures are required for access to the entire region involved. The author does not recommend slitting of the cheek according to the Jaeger-Risoli method or

division of the jaw according to the method of Langenbeck or Kocher. By a procedure of his own he mobilizes the tongue so that it can be drawn far enough out of the mouth. He applies a noose to the tip of the tongue, divides the frenulum, ligates the lingual veins, slits the mucous membrane of the floor of the mouth along the undersurface of the tongue as far as the palatoglossal arch on both sides and cuts the attachment of the palatine arch to the border of the tongue. The tongue is then sufficiently mobile to permit its posterior transverse division at a distance from the foramen caecum. By means of this small auxiliary operation, practically all tumors of the body of the tongue can be extirpated.

The author next discusses the groups of glands which must be removed. These are the submental glands, the glands lying in front of and behind the submaxillary glands, and the deep cervical glands external to the common jugular vein at the level of the bifurcation of the carotid. Their extirpation is undertaken first with bilateral ligation of the lingual arteries. For the extirpation of the glands, a large incision is made from the mastoid process to the great cornua of the hyoid bone and thence to the midline and the chin. Starting from its deepest point, a long tubular incision is carried down and to the sternal attachment of the sternocleidomastoid muscle. Beginning at the lower margin of the incision, all of the lymph glands together with the salivary glands are removed so far as possible in one mass.

Socrensen extirpates the glands and the carcinoma in one stage. The transverse amputation of the tongue he performs in steps. Starting at the side, he divides the tongue and then at once unites the tongue surface to the mucosa of the mouth. He states that the operation is not dangerous; he has had no deaths from it for many years. Satisfactory speech after the operation requires primary healing. When healing occurs by primary intention there are no heavy scars, and the mobile stump can take over the function of the tongue very well.

Carcinoma of the pharyngeal portion of the tongue is difficult to attack surgically and aspiration pneumonia is as formerly the almost unavoidable consequence of their removal. With the object of preventing this sequela, the author slits the trachea beneath the ligamentum of the thyroid and introduces a rubber tube upward and a cannula downward for respiration. This drainage of the larynx affords almost certain protection against aspiration pneumonia.

In carcinoma of the base of the tongue the author makes a skin incision over the hyoid bone and divides the anterior hyoid laryngeal muscles. Further procedure then depends upon whether or not the epiglottis is to be preserved. If the epiglottis is not to be preserved, the hyothyroid ligament and the pedicle of the epiglottis are divided, but if preservation of the epiglottis is possible, the approach is made through the hyoepiglottic membrane. After extirpation of the tumor, all divided structures are

united again with the greatest care and the wound is closed around two drains. Of seven cases in which the author operated in this way, healing occurred in all. It is essential for the success of the operation that the hypoglossal nerves be protected from injury as otherwise the stump will remain motionless. If these nerves must be sacrificed, it is better to excise the entire tongue. The author performs the extirpation in the manner already described after tracheal drainage and subhyoid pharyngotomy. By these procedures it is possible also to remove the larynx at the same time as the tongue.

Carcinoma of the floor of the mouth are very malignant; therefore their excision must be extended far into healthy tissue. The author avoids division of the jaw because he has never known it to be followed by bony union. He operates by Billroth's method, separating all of the muscles from the floor of the jaw and then opening the mucous membrane of the floor of the mouth. For this operation also, tracheotomy is necessary. The transmandibular operation is performed by Socrensen only when the tumor has involved the jaw. (VOGELER, Z.)

## PHARYNX

Barelay A. E. The Normal Mechanism of Swallowing. *B. J. R. A. I.* 1930. 534.

From X-ray studies of the normal mechanism of swallowing, the author concludes that the bolus is carried from the back of the tongue to the clavicular level largely by negative pressure in the pharynx, which exerts a suction action. The combined action of raising the larynx and backward movement of the tongue obliterates the pharyngeal space for a fraction of a second. With the mouth nose and larynx closed, the reopening of the pharynx produces the negative pressure. Except in the case of fluids, gravity plays a minor part in the normal act of swallowing. The epiglottis does not fall back over the mouth of the larynx as is commonly believed, but remains in the erect position behind the tongue. The larynx is closed by the laryngopharyngeal wall, which is drawn up to make contact with the epiglottis.

The sequence of events is as follows:

1. The mouth and nose are closed.
2. The larynx is raised and closed and its upper part is obliterated by the back of the tongue.
3. The pharynx becomes momentarily obliterated by the rise of the larynx and the retraction of the tongue.
4. A negative pressure is created in the pharynx by dropping of the larynx, which still remains in close relation to the epiglottis and forward movement of the tongue.
5. Food is pressed back over the tongue and is immediately sucked into the laryngeal pharynx.
6. The laryngeal pharynx drops, opening the larynx.
7. The food is sucked some distance down the esophagus.

The whole act of swallowing from the tongue to about the level of the clavicle in the oesophagus takes place during a small fraction of a second

SAMUEL PERLOW M D

## NECK

**Sattler H** The Pathological Anatomy and Histology of the Thyroid Gland in Basedow's Disease (Pathologische Anatomie und Histologie der Schilddrüse bei der Basedowschen Krankheit) *Arch f path Anat* 1930 cclxx 11 178

Sattler says that in Basedow's disease a macroscopic enlargement of the thyroid gland is always demonstrable. In many cases the enlargement is not uniform. Nodules and cyst formation do not occur in primary Basedow's disease but may be present in secondary Basedow's disease. In contrast to the findings in the living the consistency of the excised gland is firm. The cut section is smooth grayish yellow or grayish red and dull. A thin turbid fluid may be scraped from its surface. In the interlobular septa dilated veins are frequently seen. Histologically the thyroid follicles are strikingly irregular in form and size. Often they are greatly elongated and branched. The follicular epithelium varies from the cuboidal to the cylindrical type and is in active proliferation. The colloid is thinned or absent. The vascularity which is so characteristic of the clinical picture of the Basedow goiter is little evident in the microscopic preparation but the thin walled veins in the interlobular connective tissue and in the capsule are frequently greatly dilated and filled with blood. The great friability of the vessel walls is manifested by numerous extravasations in the interstitial connective tissue. Dilated lymphatics are also sometimes seen in the connective tissue septa.

Another group of Basedow goiters present an entirely different picture from that described. In these small and moderately large round or oval follicles dominate the field. The epithelial lining in the small follicles is cuboidal or low cylindrical and usually single layered. In addition there is a tendency toward marked desquamation of the epithelial cells. The cellular desquamation is not pathognomonic of Basedow's disease however as it occurs also as a result of infectious and toxic influences.

There are also Basedow goiters in which large small and very minute follicles mixed together or united in groups are seen in every lobe.

A finding in Basedow goiters which varies greatly in its frequency is lymphoid cell accumulations in the interstitial connective tissue. However lymphocyte accumulations or lymph node are found also in ordinary goiters and sometimes in normal thyroids. The author believes they have no relationship to status thyroideus. He regards them as the result of a toxic irritation the expression of a reaction against such irritation. The follicular epithelial and colloid changes in the Basedow goiter indicate abnormally increased activity of the thyroid gland. Similar histological change occur in compensatory

hypertrophy of the remnant of thyroid left after removal of a large portion of the gland.

GEDELE (Z)

**Mayer E and Fuerstenheim A** How Closely Are Certain Forms of Thyroid Acini and Colloid Related to the Clinical Picture of Basedow's Disease? (Wie et entsprechen den klinischen Bildern der Basedowschen Krankheit bestimmte Formen der Schilddrüse entlaeschen und des Kolloids?) *Arch f path Anat* 1930 cclxx 11 391

The authors state that variations in form (polymorphism) of the thyroid acini cylindrical epithelium and thin colloid formerly seemed to be quite constant findings in Basedow's disease.

For several years—since about the time of the introduction of pre operative treatment with iodine—the usual finding in Basedow's disease has been the macrofollicular colloid struma with only localized papillary outgrowths of columnar epithelium from the acinar walls (Sanderson's cushions).

The amount of cylindrical epithelium bears no regular relationship to the severity of the clinical manifestations. In very severe cases of Basedow's disease acini lined with smooth cuboidal epithelium are occasionally found and in atoxic cases marked cushions may occur. Moreover in cases showing decided clinical improvement papillary outgrowths of purely columnar epithelium have been discovered.

A closer relationship exists between the clinical picture and the staining quality of the colloid.

A good evaluation of the quantity of colloid can be obtained by the comparative use of the Mallory and Kraus stains but the nature of the colloid cannot be ascertained in this way.

It is probable that the thyroid picture is influenced by the administration of iodine and that the colloid is affected more than the epithelium. However the often claimed conversion by iodine treatment of colloid free thyroids with papillary outgrowths of purely columnar epithelium into macrofollicular colloid goiters with cuboidal epithelium has not been proved by statistics or by biopsy.

Progress in thyroid research requires thorough evaluation of the histological and clinical findings a study of the transitional forms by observations on the living and the working out of the simplest details.

O MEYER (Z)

**Curtis G M** The Blood Supply of Human Parathyroids *Surg Gyec & Obst* 1930 li 85

The blood supply of the human parathyroids particularly the collateral blood supply was studied in a series of twenty five cadavers immediately preceding autopsy. An especially devised injection apparatus was employed. A carmine gelatin mass was injected into the lower thoracic aorta below the origin of the bronchial and oesophageal arteries at a pressure of 150 mm Hg. By preliminary ligation of certain arteries leading away from the neck the injection was localized largely to the thyroid area.

Abundant anastomoses were demonstrated between the thyroid arteries especially the inferior and the arteries of the larynx pharynx trachea and œsophagus and their surrounding fasciæ. It was found also that the thyroid arteries anastomose with one another and across the median line particularly in the region of the isthmus. The parathyroids receive their single artery as a rule from the inferior arteries.

After preliminary ligation of both inferior thyroid arteries the presence of carmine gelatin which had been injected was demonstrated in the parathyroids by means of frozen sections. After ligation of both inferior thyroid arteries together with the anterior branches of both superior thyroid arteries the injection mass was demonstrated in the parathyroids by the same method. In three bodies all four arterial trunks were ligated preliminary to the injections and the mixture was subsequently demonstrated in the vascular spaces of the parathyroids. The posterior fascial connections between the thyroid and the trachea and œsophagus particularly in the region of the isthmus and the medial borders of both lobes are important in maintaining this collateral supply.

In the Surgical Clinic in Berne ligation of both inferior thyroid arteries is frequently done as a hæmostatic measure preliminary to thyroidectomy.

In many instances the anterior branches of the superior arteries are ligated at the same time. In less than 1 per cent of the cases all four arterial trunks are ligated. Since tetany does not follow these procedures it is apparent that the collateral blood supply to the parathyroids is ample. The demonstration of an injection mixture in the parathyroid glands following the preliminary ligation of both inferior thyroid arteries and even of all four thyroid arteries substantiates this conclusion and places it on a firm experimental basis.

JACOB M. MORA, M.D.

Jacques L. The Treatment of Postoperative Tetany with Special Reference to the Administration of Irradiated Ergosterol. *S. G. Gynec. & Obst.* 93: 1-823.

Jacques discusses current methods employed in the prevention and treatment of postoperative tetany and reports his results from the use of irradiated ergosterol in six cases of the condition. In three cases there was improvement in which the ergosterol may have been a factor but in the two most severe cases no improvement resulted from the ergosterol treatment. The author concludes that his observations do not support the theory that the action of Vitamin D occurs through the agency of the parathyroid bodies. JACOB M. MORA, M.D.

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Davis L. Surgical Indications in the Treatment of Skull Fractures *Internal J Med & Surg* 1930  
vli 1 621

The author believes that in cases of skull injury with a comminuted depressed fracture middle meningeal haemorrhage or chronic subdural haematoma surgical intervention is indicated definitely but in all other cases the treatment should consist of conservative measures to reduce the increased intracranial pressure. Chief among the latter is the intravenous administration of a 50 per cent solution of glucose—100 c cm. to adults and from 25 to 50 c cm. to children. This may be repeated every twelve hours with or without insulin as indicated. At the same time adults may be given from 150 to 180 c cm. of a saturated solution of magnesium sulphate every four hours by very slow Murphy drip or by stomach tube if the solution is not retained by rectum. The administration of hypertonic solutions should be continued until the patient regains and maintains consciousness.

Spinal punctures should be done in cases of skull injuries in which there are large amounts of blood in the subarachnoid space but not for the reduction of increased intracranial pressure. The presence of blood in the subarachnoid space is manifested by rigidity of the neck and extreme restlessness. In cases with bloody spinal fluid spinal punctures should be done daily until the spinal fluid becomes clear. Frequent spinal punctures are indicated also in the treatment of the meningitis which sometimes follows basilar fractures.

The removal of fluid by spinal puncture is not without danger as it may allow the cerebellar tonsils to be drawn downward into the foramen magnum with the production of medullary compression and it may produce minute haemorrhages in the brain stem which may prove fatal. Spinal puncture does not cause such a prolonged decrease in pressure as may be obtained from the use of hypertonic solutions.

Localizing signs resulting from middle meningeal haemorrhage are discussed briefly. The author believes that dilatation of the pupil points rather directly to the side of the lesion and is a sufficient indication for surgical interference.

In cases of chronic subdural haematoma the trauma may be slight and the symptoms may not develop until very late. Years after the injury surgical interference may become necessary to remove an old clot.

For the removal of comminuted fragments the author uses the tripod incision with the wound in

the center. He believes that subtemporal decompression is contra indicated in cases of coma from skull injury as it causes additional oedema and injury.

ROBERT ZOLLINGER M D

Fay T. The Management of Tumors of the Posterior Fossa by the Transtentorial Approach  
*Surg Clin North Am* 1930 x 1427

Tumors of the posterior fossa obstruct the pathway for fluid either directly or indirectly. The aqueduct of Sylvius and the outlets of the fourth ventricle are sometimes obliterated by compression or a lesion situated in the cerebellopontine angle may close the cisterna pontis on one side and displace the pons against the edge of the incisura of the tentorium thus obstructing the opposite pathway.

In order to reach the middle fossa on its way to the vertex the fluid from the posterior fossa must pass through the narrow cisterna pontis. The tentorium divides the middle fossa from the posterior fossa in such a way that there is only a small space anteriorly and on the lateral aspects of the pons to permit subarachnoid fluid to reach the cisterna chiasmatis above. Normally no fluid passes over the posterior surfaces of the cerebellum. Hence comparatively small tumors in the cerebellopontine angle may produce a serious block of the fluid pathways and may be associated with a rapid rise in the intracranial pressure.

The removal of a tumor of the cerebellopontine angle or of the cerebellum through the old midline suboccipital approach is not always followed by relief of pressure as it may fail to reestablish the fluid pathways to the middle fossa and vertex. The failure is due primarily to the fact that the incisura produces a strangulation effect in the region of the pons and the fluid pathways once obliterated may become re-adjusted only with difficulty.

The new procedure described by the author is a combination of the former posterior fossa approach for cerebellar and cerebellopontine angle tumors and the tentorial approach of Naffziger. Its purpose is to open the tentorium from the incisura to the lateral sinus freely and thus relieve the strangulation about the pons and permit decompression of the cerebellum.

A tumor of the cerebellopontine angle can be dealt with by this method most satisfactorily because of the larger exposure obtained from above and below the possibility of elevating and rotating the cerebellar hemisphere after the tentorium has been incised and the facility with which the lateral sinus may be ligated to permit complete exposure of the entire cerebellar hemisphere when necessary. It is possible by this method to advance as far as the posterior clinoid process and to explore the



middle and posterior fossae on the side of the operation as well as the pineal region and the vermis of the cerebellum. The reactions following the procedure with or without ligation of the lateral sinus have been less severe than those following the midline suboccipital approach and the results in cases in which the suboccipital approach has failed have been highly satisfactory.

The operative technique is described in detail and five cases in which it was used are reported.

DA TO J IMPASTATO MD

Alajouanine T, Petit Dutailh D, Bertrand I, and Schmitz J. A Comparative Study of Four Tumors of the Skull: Histological Nature in the Rolandic Region and the End Results after Surgical Removal. (Etude comparative de quatre tumeurs du crâne: leur nature histologique et les résultats de leur résection). *Ann. Chir. (Paris)* 1933; 31: 167.

The first case reported was that of a man thirty-one years of age whose illness began with progressive torpor, intense headache and convulsive seizures as met metes localized and of the jacksonian type and sometimes generalized. A leptomeningeal resection followed by deep radiotherapy gave temporary relief but the symptoms recurred and hemiplegia developed on the right side. Examination of the eyes then disclosed bilateral papilloedema. At a second operation a tumor the size of an orange, which was rather vascular and adherent to the dura mater, was removed with the electrocautery from the region of the paracentral gyrus and the osteoplastic flap closed without drainage. Histological examination showed the neoplasm to be a meningioma with a structure resembling more closely that of a young fibroma than that of a fibroendelioma. There were no areas of hyaline degeneration with secondary calcification. Thirteen months after the operation the patient was free from headaches and visual disturbance, his general health as good and he had no speech defects but the hemiplegia on the right side persisted and at times there were slight jacksonian seizures.

The second case was that of a thirty-four-year-old man whose illness began with convulsive seizures and weakness of the left leg and arm. Five years later he had jacksonian convulsions. He entered the hospital with hemiplegia and papilloedema on the left side. At operation a portion of a tumor was removed from the Rolandic area with the thermocautery. The specimen measured 8 by 3 cm. A histological examination as found to be glioma ranging from the astrocytoma to the spongioblastoma type. Eight months after the operation there was slight improvement in the hemiplegia, the convulsions were less frequent and the eyes were normal.

The third case was that of a man thirty-six years old who sought treatment on account of difficulty in walking and epileptic attacks. The illness began rather suddenly with a severe attack of jacksonian convulsions and loss of consciousness. Since then the patient had had repeated attacks often preceded

by an aura which usually consisted of a tingling sensation in the great toe. He entered the hospital with a left hemiplegia. There were no ocular disturbances. The Wassermann reaction was negative. At operation a yellowish tumor measuring 3 by 4 cm. was found in the Rolandic area on the right side over the paracentral gyrus. The neoplasm was removed under local anesthesia with the electrocautery. At times during the operation the patient was nauseated and experienced difficulty in speaking. Histological examination showed the tumor to be a cerebral glioma. Postoperative radiotherapy was given over both parietal regions. A year and four months after the operation the patient was carrying on his work as an agriculturalist but nine months later he died after sudden recurrence of his symptoms and autopsy disclosed recurrence of the tumor.

The fourth case was that of a man twenty-eight years old who was seized with a sudden sensation like a blow on the head followed by numbness in the left side of the head and the left arm. Three weeks later he had a similar attack which was limited chiefly to the left facial region and was associated with inclination of the head toward the left shoulder. Later difficulty in walking particularly with the left leg developed. There was no evidence of syphilis and no ocular defect. At operation under local anesthesia an osteoplastic flap was elevated over the right frontoparietal region and a soft pseudocystic tumor measuring 6 by 4 cm. was found adherent to the dura mater over the Rolandic region. Histological examination showed the lesion to be a peripheral type of fibrilloma with polytrophic degeneration. Twenty-one hours after the operation the patient became comatose. A diagnosis of hematoma was then made. At reoperation a hemorrhage from a small vein of the dura mater was found. This vein was ligated and a gauze drain inserted. Five months after the operation the patient was free from sensory disturbances, headache and facial parasthesia and the facial hemiparesis was diminished. There was definite improvement in the walk and in the left arm. In spite of hypotonicity voluntary movement was normal.

These four cases were clinically similar in the fact that the disturbances began with jacksonian epilepsy which led to monoplegia or progressive hemiplegia. In the last two cases there were no changes in the cerebrospinal fluid nor in the eye grounds. The field involved by the jacksonian convulsions was gradually extended. The author emphasizes that it is important to operate before the development of complete hemiplegia and before the intracranial pressure is increased.

J. COHEN MD

Pirri G, O'Suighey J. The Symptomatic Treatment of the Trigeminal Neuralgia (Crisis) in the Trigeminal Ganglion. (Le traitement symptomatique de la névralgie du trijumeau). *Ann. Chir. (Paris)* 1933; 31: 167.

Resection of the superior ganglion of the cervical sympathetic for the treatment of severe neuralgia of

the trifacial nerve was done for a while and then given up in favor of operation on the gasserian ganglion. In order to test the value of the former procedure the author tried it in three cases which he followed up for from four to five years. The results were variable. In the first case there was slight improvement for several weeks. In the second the operation appeared to be followed by a true cure but after two years the pain recurred. In the third case that of a patient seventy seven years of age the operation brought about remarkable improvement which has been maintained for five years. The attacks now occur only at long intervals and are very mild. As very little is known regarding the nature of neuralgia it is impossible to give a satisfactory interpretation of these variable results.

The author concludes that operation on the sympathetic is indicated in the cases of very old patients in whom operation on the gasserian ganglion is not without danger and in cases of atypical neuralgia in which operation on the gasserian ganglion is often ineffective.

AUDREY G. MORGAN, M.D.

### SPINAL CORD AND ITS COVERINGS

Brugeas. Two Cases of Lumbosacral Spina Bifida (Deux observations de spina bifida lombo-sacré). *Bull et mém Soc t de chir* 1910 LVI 1214

The first case reported was that of a man thirty-four years of age who entered the hospital because of lymphangitis of the scrotum and urinary disturbances. Since his early youth the patient had had disturbances of urination and defecation. He passed small amounts of urine frequently often involuntarily and suffered from constipation alternating with diarrhoea. For two months he had had a supuration of the scrotum associated with fever.

The scrotum was enlarged and infiltrated. On its postero-inferior surface an abscess had opened. There was slight hypospadias. The legs were normal in appearance but somewhat emaciated. Walking was very difficult. The knee jerks were markedly exaggerated but there was no epileptoid trepidation, no Babinski sign and no clonus of the foot. Sensibility was normal so far as perception was concerned but the patient stated that he had painful sensations in the leg especially at night.

Examination of the spine disclosed in the lumbar region a firm tumor the size of a large orange which the patient said was congenital. This tumor was slightly ulcerated in the center and was surrounded by a collar of hair. Pressure upon it caused dull pain in the legs. Beneath the tumor an opening in the vertebral laminae could be felt. The roentgenogram showed spina bifida of the fourth and fifth lumbar vertebrae.

At operation the tumor was found to have a pedicle 2 cm long and 1 cm thick. On each side of it the dura mater was thickened. The neoplasm was removed without opening the meninges.

On section it had a fibromatous appearance. It was white and elastic and presented small necrotic

foci. Histological examination disclosed no evidences of malignancy.

The operation was followed by a complete change in the nervous phenomena. At the end of a week the reflexes were much less active and when the patient left the hospital they were nearly normal. The frequency of urination was reduced. The constipation with involuntary loss of feces persisted for several days but at the end of that time the bowels moved once daily. When the patient left the hospital the dull pain in the legs persisted but was greatly decreased and he was able to walk more easily and with more assurance. When he was seen again a year later he was able to work normally and to walk long distances without much difficulty. The pain in the legs had ceased and his general condition was greatly improved.

The second case was that of a man twenty-one years of age who entered the hospital on account of nocturnal pain in the legs and a tumor of the lumbosacral region of the spine. The tumor had been present since his infancy but had become larger during the last six months. When the patient was examined by Brugeas the tumor was the size of a large orange. The skin over it was normal. There was no hair and no angioma. The tumor seemed to be adherent to the deeper tissues. Lobulation could not be felt. Deep palpation disclosed irregularities in the osseous surface. There was no pain. The legs presented no deformities or motor troubles. The reflexes were normal. There was no trophic disturbance. The patient stated that he had had incontinence of urine since the age of twelve years. The roentgenogram showed spina bifida of the first sacral vertebra.

At operation Brugeas extirpated a large cyst containing about 100 cc of sebaceous matter which penetrated between the sacrolumbar muscles. There was no pedicle. When the muscles were separated after removal of the tumor dehiscence of the first sacral vertebra was seen. The dorsal sac appeared normal and was free from adhesions.

After the operation the nocturnal pain persisted for two or three days but by the twelfth day when the patient left the hospital it had completely ceased.

LEVEUF who read the report of Brugeas before the Society stated that in his opinion spina bifida occulta was present in the first case reported by Brugeas but that the so-called tumor was a chronic inflammation originating in the ulceration of the teguments. He believes that Brugeas' second case was a case of dermoid cyst of the sacral region developing in a subject in whom the posterior arch of the first sacral vertebra was incompletely ossified.

Leveuf J. Two Cases of Spina Bifida with a Solid Tumor (Deux observations de spina bifida avec tumeur olide). *Bull et mém Soc nat de chir* 1910 LVI 218

In the two cases of spina bifida reported by the author there was found under the normal skin a lipoma which obscured a cleft in the lumbosacral

or sacral vertebrae. In the bottom of the cleft there was a meningeal sac or meningocele to which the superficial tumor was partly adherent. When the meninges were opened a medullary cord was discovered which traversed the cavity and was inserted at the bottom of a meningeal sac at a point corresponding to the zone of superficial adherence to the tumor. A solid tumor surmounting a spina bifida sac is usually a lipoma. Myofibrosarcomata are more common than pure lipomata. In the author's two cases the principal tumor was a true lipoma. Leveuf does not consider spina bifida with tumor a distinct entity.

The primary characteristic of true spina bifida occulta in which there is a medullary malformation is abnormal fixation of the cord. It has been established that this type of spina bifida always presents a tumor of variable size at the point where the ectopic cord ends. Consequently if operation is limited to extirpation of the tumor without opening of the dura mater it will have no effect on the abnormal fixation of the cord. This malformation influences the appearance of the secondary symptoms of spina bifida.

The symptom of spina bifida with or without a visible tumor may be classified as primary and secondary. The primary symptoms are present from birth and caused by the medullary malformation, the myelodysplasia. In cases with such symptoms and terminal insertion of the cord the cord which traverses the sac represents that portion of the spinal cord which under normal conditions would atrophy to form the conus and the flum terminale. The primary nervous disturbances are due not to the abnormal fixation of the sac but

to retrograde lesions of the cord itself some of which extend a great distance from the spina bifida. Leveuf has observed various medullary lesions—hemi atrophy of the cord, hydromyelia and syringomyelia.

The secondary symptoms of spina bifida appear at about the age of puberty. As the tumor must be large and intrameningeal to compress the spinal cord, compression by the tumor is seldom the cause of secondary symptoms. More important causes are elongation of the medullary cord of the spina bifida during the subject's growth and the evolution of the medullary lesions themselves. Intra medullary fluid collections (hydromyelia, syringomyelia) increase with time and compress or destroy the medullary tissue by which they are surrounded.

The primary lesions are incurable but the secondary lesions can be prevented if operation is done early.

The operation includes the following steps: (1) dissection of the lipoma as far as its insertion on the meningeal sac of the spina bifida; (2) opening of the dura mater in front of the zone of adhesion; liberation of the cord and if the cord is distended by a fluid collection, evacuation of the fluid; (3) closure of the meninges and (4) closure of the spinal fissure by means of two pedunculated aponeurotic flaps cut in the neighboring region.

In twelve operations which the author performed for spina bifida covered with epidermis (including the two reported in this article) there was only one death and that death was due to the anesthetic. The position of ventral decubitus in which Leveuf keeps his patients after the operation is an important factor in cure.

Pic

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Neal M P and Simpson B T Diseases of the Male Breast *J Missouri State M Ass* 1930  
vii 565

Of 5 000 breasts submitted for pathological examination to the New York State Institute for the Study of Malignant Disease Buffalo N Y and 314 examined in the Department of Pathology of the University of Missouri Medical School Columbia Missouri only 15 (2.86 per cent) were from males. Of the latter 54 (35.52 per cent) showed a non neoplastic disease (4 acute mastitis 47 chronic mastitis and 3 cysts). Sixty (39.47 per cent) presented a benign tumor (6 alipoma 6 a fibroma 45 an adenoma and fibroma 1 a lymphangioma 1 a papilloma of the skin and 1 an adenoma sebaceum). Thirty five (23.02 per cent) presented a malignant tumor (7 a sarcoma 3 a carcinoma of the skin and 25 a carcinoma originating in the ducts or acini). Eighty per cent of the malignant tumors were carcinomas and 20 per cent were sarcomata.

There were no cases of tuberculous mastitis keloid Paget's disease fibro adenoma cysticum or endothelioma. In the total 5 314 breasts examined the ratio of benign lesions in male and female breasts was 1:23.44 and the ratio of malignant tumors 1:68.25.

EARL O LATIMER M D

Rousset J The Anatomical Structure of the Human Nipple and Its Pathological Consequences (La constitution anatomique du mamelon humain ses conséquences pathologique) *Gynecol Obst* 1930 xii 205

In connection with a study of Paget's disease the author made an extensive investigation of the normal breast in both autopsy and operative material. Longitudinal and transverse serial sections of the breasts of women of all ages were examined. It immediately became apparent that the standard descriptions of the normal nipple are not entirely exact and that the individual variations in structure are very great.

The nipple is ordinarily described as an evagination of the areola the lactiferous ducts occupying the axis of the structure. While this is true to a certain extent the ducts sometimes diverge to open at the periphery of the nipple or converge toward a point at the periphery.

When the ducts remain in the axis of the nipple they may open on the surface separately. More often they become lined with stratified squamous epithelium at various levels and opening into one another terminate in a central infundibulum of varying size. In still a third type they diverge to the periphery of the nipple opening onto the skin

at an angle and leaving the central portion occupied by connective tissue muscle vessels and nerves. These different arrangements determine the situation of the sebaceous glands which are adnexa of the ducts.

Over the base of the nipple the epidermis is very thin like that of the areola but over the extremity it is thick the interpapillary pegs being highly developed and often bifurcated. In elderly women the cells of the malpighian layer often have retracted nuclei even at a depth where no keratinization has occurred. This change is believed to represent a dyskeratosis. In women of from thirty five to forty years of age who have lactated the cells are numerous whereas in young women they are few.

Sebaceous glands are numerous. Their arrangement has received little attention. They are most abundant at the tip of the nipple. When opening on the skin surface the excretory canals are formed by an invagination of the squamous epithelium of the epidermis. In these canals the cells showing dyskeratosis are numerous. Other sebaceous glands discharge into the lactiferous tubules. These are described as adnexa of the lactiferous ducts.

After becoming lined by squamous epithelium the ducts often anastomose. It is in this portion that the sebaceous glands discharge. The ducts of the sebaceous glands appear to be formed from diverticula of the squamous lining of the lactiferous ducts.

After the menopause the only appreciable changes are seen in the connective tissues which undergo atrophy and retraction. Cells showing dyskeratosis are especially abundant.

The structure of the male nipple is the same as that of the female nipple except that the ducts are smaller the sebaceous glands are less numerous and dyskeratosis is rarely present.

Dyskeratosis is normally found in the nipples of all women after a certain age. The cells are especially numerous in the squamous portion of the duct epithelium both the lactiferous and the sebaceous. In young women they are found in the ducts of the sebaceous glands and it appears to be from here that the change spreads to the structures of the nipple.

Paget's disease affects the nipple almost exclusively. Its most common sites elsewhere are the vulva or the glans. The one structure common to the nipple vulva and glans is the sebaceous gland without hair follicles. From these glands Paget's disease is believed to have its origin. This theory is confirmed by a study of the epitheliomatous dyskeratosis of Bowen. In a case of Bowen's disease of the vulva with metastasis to the inguinal lymph nodes which was studied by the author the cancer was of the type associated with Paget's disease.

The large clear cells described by Darier im properly called Paget cells are believed to bear a distinct relation to the cells showing dyskeratosis in the normal breast. The author believes that Paget's disease is an early carcinoma originating in these cells probably in the ducts of the sebaceous glands and spreading to the lactiferous tubules and the skin.

The article contains numerous illustrations

ALBERT F. DE GROOT, M.D.

Lee B. J. Significant Problems for the Obstetrician in the Field of Mammary Cancer. *Am J Obst & Gynec* 193 775

When mammary cancer is complicated by pregnancy the prognosis is unfavorable. Immediate therapeutic abortion should be done. If the patient's condition permits, radical mastectomy should be performed at the same time. If not, this operation should be done as soon after the abortion as possible. If the patient is unwilling to submit to immediate sterilization of the ovaries by high voltage roentgen irradiation, she should be warned against becoming pregnant again.

A condition of special interest to the obstetrician is inflammatory carcinoma of the breast. This is often seen in young women and may appear during lactation. The diagnosis may be extremely difficult. Radical surgery yields poor results. The patient will survive longer with less discomfort if she is treated entirely by irradiation.

The author states that a malignant neoplastic lesion of the female genital organs is found in every 200 cases of mammary cancer.

In the discussion of this report, Auchincloss said that the prognosis of carcinoma of the breast is very difficult to determine as patients who are seemingly operable may remain well and patients who are apparently curable by operation may die in a short time.

White stated that in the diagnosis of inflammatory carcinoma of the breast transillumination is of considerable value. He believes that diagnostic needle puncture associated with considerable danger of spreading the cancer cell by the blood stream and lymph channels. He advocates radical surgery in the treatment of this condition as he considers the insertion of radium needles or seed a haphazard method.

Dickinson presented a method of graphic representation he has found of value in the study of breast conditions.

F. L. COLEMAN, M.D.

McGlannan A. Blue Domed Cysts and Cancer of the Breast. *Am J Surg* 193 Pt 91

McGlannan reports three cases of the simultaneous presence of cancer and blue domed cyst of the breast. These were found in a series of 100 cases of mammary carcinoma. In spite of the fairly distinct characteristics of the blue domed cyst, no clinical examination can show the condition of the cyst wall. In certain instances there may be an area of active

epithelium which is potentially malignant. The author therefore believes it best to excise all blue domed cysts and to examine the surrounding breast tissue as well as the wall of the cyst for areas of malignancy.

J. COLEMAN, M.D.

D'Aunoy R. and Wright R. W. Sarcoma of the Breast. *Am J Surg* 193 xc1 1059

The pure connective tissue type of malignancy of the breast is rare. The authors record the 11 cases of sarcoma of the breast which have been treated at the Charity Hospital, New Orleans during the last twenty-five years and briefly review the literature on the condition.

In 1917 Deaver collected 838 cases of sarcoma of the breast from the literature but concluded that because of faulty classification of the tumors this number did not indicate the true incidence of the neoplasm. He stated that the 15 cases which came to operation at the Lankenau Hospital, Philadelphia in a period of sixteen years constituted 2 per cent of the total number of cases of breast tumor treated at that hospital during the same period of time.

In addition to the 11 cases of mammary sarcoma reported in this article, 1035 cases of mammary carcinoma have been treated at the Charity Hospital, New Orleans during the last twenty-five years, a total of 1046 cases of breast malignancy.

The cause of sarcoma of the breast like that of other types of malignancy has not been established. However, it is recognized that the presence of a benign tumor of the breast may be regarded as of importance in the development of malignancy. While secondary malignant changes in the benign growths are usually carcinomatous, they may occur also in the connective tissue elements of the organ with the production of a sarcomatous tumor.

In the vast majority of cases there is a history of a symptomless stationary tumor of many years duration (forty years in a case reported by Sutton) which suddenly began to grow rapidly. Although trauma must be considered a factor in a few instances, the authors believe with many others that it is usually not very important in the production of sarcoma of the breast.

The youngest patient whose case is reviewed by the authors was twenty-three years old and the oldest seventy-five. The average age of the 11 patients is forty-four and fifteen hundredths years.

As true of all other pathological conditions of the breast, sarcoma is much more frequent in the female than in the male. Only 1 of the cases reviewed by the authors was that of a male. It is believed by many that pregnancy and lactation are of little importance in the origin of breast sarcoma. If this is correct, it seems justifiable to attribute the higher incidence of breast sarcoma in the female to the higher incidence of benign tumors of the breast in the female.

With regard to the etiology of mammary sarcoma, it is of great importance to consider the

adenosarcomata for even though they are a rather specific form of mixed tumor they probably have the same origin as most pure sarcomata at least those of the true spindle cell types eventuating as a result of malignant transformation of fibro adenomata. The true adenosarcoma presents many variations in structure and is comparatively rare. It is often mistaken for a rapidly growing carcinoma with anaplastic spindle shaped or round cells grouped about the hypertrophied ducts.

Of the pure mammary sarcomata the spindle cell sarcomata constitute a rather well defined group. In these cyst formation is prominent and a combination with other tissue types has been noted. The diagnosis is not simple as very often atypical carcinomata present large areas of spindle shaped cells. Tumors of this general type presenting marked or short spindle cells are the most malignant.

The round cell sarcomata constitute an ill defined group insofar as their nature and structure are concerned. Many growths classed as round cell sarcomata are atypical carcinomata.

In many cases of sarcoma of the breast in which the axillary glands have been found enlarged they showed no histological evidence of malignancy. Glandular hyperplasia may be due to sepsis. Of 68 cases studied by the authors histologically proved metastasis to the lymph nodes was found in 2 and histologically proved metastasis to the lungs in 4.

It is generally believed that sarcomata of the breast may remain stationary in size for months or even years after they are first noticed and that when growth ensues it is usually very rapid the tumor usually attaining gigantic proportions before the patient comes under the observation of the surgeon. Hamann states that the typical tumor is partly cystic and partly solid and that the axillary glands are usually not involved. While early diagnosis may be difficult he believes that a large tumor of the breast which is partly cystic and partly solid not adherent to the skin and not associated with axillary adenopathy is probably sarcomatous.

The general health is usually less impaired by sarcoma than by carcinoma of the breast in spite of the rapid growth of the former.

In the cystic types of sarcoma there may be either a hemorrhagic or a serous secretion from the nipple but in the solid types of sarcoma there is no secretion.

The nipple is rarely retracted and the skin is never adherent to the tumor in sarcoma of the breast but ulceration of the skin occurs early. The tumor seemingly hangs away from the chest wall and is freely movable.

Histological examination is the only certain method of diagnosis as many clinically benign tumors contain sarcomatous areas and there are no pathognomonic clinical signs or symptoms distinguishing sarcoma from carcinoma.

Sarcoma of the breast is a purely surgical condition. As the vast majority of the cases on record were reported almost immediately after the opera-

tion it is not known whether the radical amputation offers advantages over simple mastectomy. However because of the malignant nature of the disease the authors believe that radical amputation is the procedure of choice. JOSEPH K. NARAT M.D.

### TRACHEA LUNGS AND PLEURA

Van Allen C M and Lindskog G E Obstructive Pulmonary Atelectasis Problems of Pathogenesis and Clinical Management *Arch Surg* 1930 LXI Pt 2 1195

In experiments on dogs the authors found that complete lobular obstruction was followed not by atelectasis but by airlessness of the entire lobe. It was demonstrated also that the incidence and rate of atelectasis formation after total bronchial occlusion are variable. The explanation of the failure of atelectasis to develop when only a part of one lobe is occluded is that the partitions which divide one alveolus from another and one lobule from another in a single lobe of a lung permit air fluids and fine particulate matter (India ink) to pass. The mechanism of this passage is not clear but it appears that there are anatomical connections possibly pores in the alveolar walls.

The clinical management of atelectasis consists in aiding the natural eliminative and expelling forces such as cough bronchial peristalsis and ciliary action. Cough has an expulsive effect on an obstruction only when there is air in the occluded part of the lung (lobular obstruction). The foot of the bed should be elevated and the patient's position changed frequently. In some cases carbon dioxide and steam inhalation may be indicated. Bronchoscopic aspiration of the obstructing material may return the atelectatic lobe to normal function.

J DANIEL WILLEMS M.D.

Coryllos P N and Birnbaum G L Alveolar Gas Exchanges and Atelectasis The Mechanism of Gas Absorption in Bronchial Obstruction *Ir Surg* 1930 LXI Pt 2 1214

Coryllos and Birnbaum describe in detail an experimental method which shows that when a bronchus is completely occluded the entrapped alveolar air undergoes rapid qualitative and quantitative changes which may be determined by successive gas analyses. Qualitatively the percentages and the partial pressures of the gases of the air in the alveoli tend to reach an equilibrium with the gases of the venous blood. However this equilibrium is never quite attained. Quantitatively the gases entrapped in the alveoli pass through the respiratory membrane into the blood circulating in the alveolar capillaries the process continuing until complete atelectasis is produced. The mechanism by which this takes place is identical in bronchial obstruction and compression of the lung from such causes as pneumothorax pleural exudate and intrathoracic tumor.

In addition to their study of the diffusion of the gases of the air the authors experimented with other

gases by introducing them into a lung previously rendered atelectatic. The gases used were (1) active gases such as oxygen and carbon dioxide (2) neutral gases such as hydrogen, nitrogen and helium and (3) anæsthetic gases or vapors such as ethylene nitrous oxide, ethyl chloride and ether. With the first and second the same phenomenon occurred as in the case of entrapped alveolar air—a qualitative and quantitative establishment of gas equilibrium. The results with the anæsthetic gases are not completely discussed being reserved for another article.

The authors use a new experimental method consisting of a glass covered vacuum box which allows direct vision of the open chest and direct observation of the pulmonary change during the experiment.

The nitrogen of the respiratory air plays the part of a mechanical buffer. It retards absorption in the alveoli of the more diffusible and more soluble gases.

From their experimental studies on the obstructed lung the authors conclude that the disappearance of alveolar air is due to absorption by the circulating blood and that pneumothorax is a result unless the alveolar gases are completely shut off from the external atmosphere. Moreover, if the bronchi cannot produce atelectasis on the centrilobes it may cause emphysema.

In discussing this report Lutz stated that he was convinced that obstruction is not the only factor concerned in atelectasis, that it is not the primary etiological factor but a late determining cause.

Luttrell said that during operation he had seen repeatedly points of atelectasis marked out by markings several centimeters in diameter. These could be gradually extended by reassembling the intrapleural spaces. He suggested that this type of atelectasis may be due to spasm of the lung and could then inherit its nature from the lung itself.

Coryllos believes that alveolar pores are not necessary for the passage of gases through the alveolar wall. It can be shown that gases diffuse through the wall in the direction of the passage immediately ceases when the alveolar walls are rendered edematous as a by-product of the capillary.

Lord stated that atelectasis is not always due to bronchial obstruction as it may be caused by compression of the pulmonary artery without and may imply atelectasis of a pulmonary infarction in which at autopsy no bronchial obstruction can be found. He believes a profound local disturbance of pulmonary function is capable of producing it.

Coryllos announced that Lilenthal stated that bronchospasm never causes complete obstruction.

J. DAVILL WILSON, M.D.

Phillip F. W. Hydatid Cysts of the Lung. A Review of the Literature. The American Cystic Diseases Society. 1915. 93. It 4.

Phillips reports two cases of hydatid cysts of the lung and believes that thirty-four collected from the literature. Two of the thirty-six cases were those of persons known to have been born in the United States. Phillips has accepted as cases of primary

hydatid cysts of the lung all those with a fairly definite picture of intrapulmonary cyst, whether or not there is evidence of infestation in other parts of the body. Cases of secondary involvement of the lungs usually manifested by the expectoration of the hydatid elements following penetration of the diaphragm and adherent lung by a cyst of the liver are not included.

Next to the liver the lung is the organ most commonly invaded. Various statistics give the incidence of involvement of the lung up to 20 per cent.

The author describes the evolution of a hydatid cyst of the lung. The cyst consists of an outer laminated, very elastic cuticle and an inner parenchymatous or germinal layer. Cysts in the lung increase in size more rapidly than cysts elsewhere in the body because of the lack of resistance to expansion offered by the compressible lung tissue. As the cyst grows it becomes surrounded by an adventitious layer of fibrous tissue formed from the host. When the cyst has reached about the size of a walnut, brood capsules arise from the germinal layer producing great numbers of scolices. Cysts of the lung usually do not contain daughter cysts.

The fate of the enlarging pulmonary hydatid cyst depends on its nourishment, the effect its pressure causes on the surrounding tissue and its location in the lung. The most frequent sequela affecting the progress of development of a cyst is rupture into a bronchus. Central cysts develop near the hilus and may be silent for a long time. When a cyst ruptures into a bronchus its contents are expectorated and if the opening is sufficiently large the germinal membrane may pass and recovery may follow the retraction and cicatrization of the walls of the cavity. If the opening into the bronchus is too small to permit passage of the endocyst infection occurs in the ruptured cyst and the picture becomes that of bronchopulmonary suppuration. Peripheral cysts involve the pleura so as to cause pleural pain. Occasionally a cyst may rupture into the pleura or pericardium. After infection has occurred in the cyst rupture into the pleural cavity results in pyothorax or pyopneumothorax. When an uncomplicated cyst ruptures into the pleura it produces a hydrothorax. When it ruptures into a bronchus simultaneously it causes a hydropneumothorax.

The symptoms of pulmonary hydatid disease vary according to the condition of the cyst. They may be divided into two groups—those produced by uncomplicated cysts and those which follow rupture of a cyst. During the early period of the growth of the parasite few if any symptoms are produced except for occasional anaphylactic phenomena. The echinococcus is well tolerated by the host until pressure is made on surrounding structures by the increasing size of the cyst. Pressure on bronchi excites the cough reflex and cough is the commonest symptom. Rupture of the walls of blood vessels finally results in ulceration opening into the lumen of a vessel with hemorrhage into the bronchial tree. Hemoptysis is an important symptom in pulmonary infestation.

When rupture into a bronchus occurs the bronchial tree is flooded by fluid having a salty taste and pieces of the cyst wall are expectorated. Infection usually follows rupture, the picture then becoming that of bronchopulmonary suppuration.

In the diagnosis roentgenographic and fluoroscopic study is indispensable. The rounded or oval shadows with distinct edges are characteristic. Other diagnostic aids are the complement fixation test and the Casoni intradermal skin test. The author compares the results of these tests in two tables.

The treatment is surgical. The plan of surgical attack depends upon the condition of the cyst. The uncomplicated cyst is an entirely different problem from the cyst that has ruptured into a bronchus and has become infected. Ruptured cysts are dealt with satisfactorily by the measures commonly employed for pulmonary suppuration.

The first case reported by the author was that of a girl nineteen years of age who was born in New York State and had never left that State. Cysts were found in both lower lobes. The cyst on the left side had ruptured into the bronchial tree and had become infected. Following its removal by pneumotomy, a secondary plastic operation was necessary to obliterate the residual fibrosed lung cavity. The cyst on the right side was removed by a one stage operation. Recovery resulted.

The second case was that of an Italian thirty five years of age who had been in the United States about sixteen years. A large cyst in the right side of the chest was treated by removal of the contents and excision of the greater part of the external wall. No scolices or hooklets were found in the contents. The author believes that this was a case of large hydatid cyst which had terminated its growth by obsolescence.

In the discussion of this report LILIENTHAL stated that in his opinion it is advisable to operate in two stages—first to remove the contents of the cyst and later in an aseptic field to remove as much of the calcified capsule as possible. He cited a case in which he drew out the wall of what must have been an enormous hydatid cyst from behind the sternum taking out one piece every day or two until all had been extracted. The patient recovered. As this operation was performed long ago roentgenographic study was impossible.

MEYER cited a case he saw in 1882 in which the pleural cavity was punctured because all of the symptoms pointed to empyema. A yellowish rather turbid fluid was obtained. At operation a great many large and small cysts were found floating in the fluid. The tumor was a hydatid cyst of the pleural cavity. The patient recovered.

JOHNS cited an operation he performed for hydatid cyst of the right lung in a Virginia medical student who had spent two years abroad during the World War. Good recovery resulted.

CORYLLOS warned against diagnostic tapping of the cysts. As the patient is often highly sensitized by hydatid fluid even a fraction of a drop entering the

circulation or the subcutaneous tissues may produce severe anaphylactic shock. Coryllos cited the case of a woman twenty five years of age who almost lost her life as the result of exploratory puncture. A second danger of puncture is the possibility of spread of scolices and thus causing secondary echinococcosis. Coryllos therefore believes that Dev's method should always be employed.

LAMBRANZI M. The Radiological Aspects of Pulmonary Tuberculosis Associated with Surgical Foci (Aspetto radiologico particolare nelle forme di tubercolosi polmonare associate con quelle chirurgiche). *Radiol med* 1930 xvii 1183.

Lambranzi describes the roentgen picture of pulmonary tuberculosis which is observed in persons with surgical tuberculosis.

From the clinical point of view this form is analogous to the fibrogranular tuberculosis of Bernard and Seyer and the discrete granula of Bard. The associated presence of surgical lesions leads in the lung to a typical fibrous condition which usually progresses slowly and especially in the early stages causes few or no characteristic symptoms.

With regard to the roentgen picture the author believes that the formation of nodules which are not extensive but rather involutive or sclerotic may be explained by the assumption that the surgical tuberculosis constitutes a focus of vaccination which has the power to prevent the rapid and acute development of the infection in the lung.

O BRIEN E. J. The Mechanics of Collapse Therapy and Its Indications. Observations in 700 Cases. *Arch Surg* 1930 xvi Pt 2 1134.

The constant activity of the lung incident to respiratory movements interferes with the healing of tuberculous pulmonary lesions. Rest in bed affords some degree of rest for the lung but collapse therapy is the only means by which the lung can be placed at complete rest.

Artificial pneumothorax collapses the lung, relaxes the elastic tissue, reduces the lung volume and limits the respiratory excursion. Operations on the phrenic nerve produce the same effect by paralyzing the diaphragm, removing its muscle tone, stopping its movements and sucking it up higher into the thorax by negative tension. Thoracoplasty removes the rigid bony support of the thoracic wall and impairs the function of the respiratory muscles.

Surgical collapse therapy is indicated in all unilateral tuberculous lesions unless they are so small that rest in bed alone will suffice and unless the lung is consolidated or pneumonic or there is some other complication which would render such treatment useless.

Collapse therapy is not curative in any form. It merely favors healing.

In the discussion of this report LILIENTHAL cited a case in which he induced pneumothorax after phrenicectomy and pushed the relaxed diaphragm down lower than it was originally.



LEWALD reported a case in which he obtained excessive elevation of the diaphragm following phrenicectomy. The immobility of the diaphragm allowed gas to become trapped in the gastric card and thereby causing severe gastric distress. This complication cannot occur on the right side.

J. DANIEL WILLEMS, M.D.

Sachs W. Th. T. atm nt of Pulmonary Tuberculosis by Thoracoplasty (De B. H. dl. g. d. r. L. tube Kul. mt Th. ak. pla. ty) B. i. Fl. d. T. b. r. k. 1930 ix 54

With thoracoplasty one can count on recovery in one third of the cases, improvement in one third and failure in one third. The strictest indication for the operation is therefore essential. A prerequisite is the hopelessness of any other therapy.

Sachs uses artificial pneumothorax instead of thoracoplasty as the method of choice because it may be employed subsequently for disease of the other lung or may be induced bilaterally, whereas thoracoplasty produces unalterable conditions which are associated with great danger if the other lung becomes involved. According to Sachs experience the danger of empyema in artificial pneumothorax is not so great as some chest surgeons have stated. Sachs has had no empyema in 800 cases of pneumothorax with 400 re-injections. Artificial pneumothorax is of special advantage also because the collapse can be terminated the procedure is associated with a relatively low mortality and according to Brauer the collapsed attained in complete pneumothorax is one third more than that attainable by thoracoplasty. Of 36 cases in which Sachs performed a thoracoplasty he preceded the operation by pneumothorax treatment in 18. In the other 8 the attempt at the induction of pneumothorax failed. Sachs is rather skeptical with regard to tamponade but states that phrenicectomy should be tried in cases with moderate tension of the disease as it may render thoracoplasty unnecessary.

Factors as to the indications for thoracoplasty cannot be given. The decision is largely a matter of experience and feeling. Since experience has its peculiarities the indication is one as indicated in the cases of patients of 40 to 60 years of age and those with a high fever and a rapidly progressing process, general debility, moderate to severe and severe diabetes, circulatory insufficiency with dyspnea, cyanosis, oedema, chronic nephritis, amyloid degeneration of the kidney, renal tuberculosis, intestinal tuberculosis, to icterus, or extensive tuberculous bone lesions. Determination of cardiac function is important. Good expectoration is essential. Bed rest for many weeks and digitalization are undesirable.

Sachs usually performs the operation under local anesthesia and in doubtful cases in 2 stages. The trapezius is spared as much as possible for functional and cosmetic reasons. The long back muscles must be well drawn aside. Passive and active motion of the arm on the side which has been operated upon

is begun on the third day. Exercise therapy is gradually increased according to a definite plan.

Of 36 patients 19 were cured, 9 were benefited and 7 was not benefited. Three died within the first 10 years and 4 died shortly after the operation.

At the end of the article there are several case histories illustrated with photographs and roentgenograms. PLEN. (Z)

De B. H. A. Fruehauf H. and Bernard R. The Technique of Thoracoplasty of the Apex with Apicolysis by the Posterior Route (Te B. H. g. d. r. del. th. pl. t. du. mm. t. ap. lys. p. vo. po. t. i. e. tr. h. tl. ch. d. lapp. p. 93 o)

As a rule the authors do not try phrenicectomy for lesions of the apex of the lung as their method of partial thoracoplasty gives good results more often and more quickly than phrenicectomy. Moreover there are two types of lesions which are not greatly influenced by phrenicectomy: (1) old fibro-vascular lesions of the apex in which retraction long fixed by a thick and rigid connective tissue can neither close a suppurating cavity nor dry up sputum full of bacilli and (2) large cavities of the apex in which all healthy tissue has been destroyed.

During the evening before and on the morning of the operation the patient is given 30 drops of somnifene and a half hour before the operation an injection of morphine. All of the tissues—teguments, muscles and intercostal nerves—are anesthetized simultaneously with a 1:200 solution of scurocaine. The patient is placed in lateral decubitus with a cushion under the last ribs and the costal space another cushion under the neck and a third cushion under the head. The table may be inclined so that the head is a little higher than the feet. The surgeon stands behind the patient, one assistant opposite and another as assistant at the patient's shoulder to hold the retractors and bring the shoulder closer at the end of the operation to facilitate the suturing.

The incision begins very low, preferably at the spine of the scapula, parallel with its spinal edge, curves far out and so that it completely frames the point of the scapula and passes by 4 cm. a vertical line drawn through this point. It is shown in an illustration. It cuts the latissimus dorsi thereby permitting an easy, rapid and not very painful operation. The scapula is raised, separated and swung around.

In the first step the skin, the trapezius and the latissimus dorsi are incised. Then the rhomboid is sectioned. The bony part is not cut into the vertebral muscles just below. Laceration of the muscles must be avoided and perfect hemostasis must be obtained with the use of numerous hemostats. In the second step of the operation the scapula is separated from the thorax. When it has been freed it takes a vertical position perpendicular to the ribs. In the third step the muscles of the vertebral groove are freed. In the fourth step the

lower costal resections are done. The authors make two incisions, one the length of the posterior border and the other the length of the inferior border. Thus the periosteum of the external surface is resected with the rib, a procedure which decreases post-operative osseous proliferation. Five different rugines are used in the operation.

The second and sometimes the third rib must be resected by a technique resembling that of resection of the first rib. The external border of the second rib is reached first. Liberation of the entire pleural surface is done before the upper border and the supero-external surface are freed. In resection of the first rib the finger must find the tuberosity and the external border of that rib. On the external edge the mass of the scaleni is cut with the bistoury close to the bone for a distance only of 2 cm. The rugine soon replaced by the finger then frees the pleura. Beginning close to the posterior extremity of the rib the liberation is continued anteriorly. The lung detaches itself. The freeing of the pleura is completed to the sternum and the lung pushed lower forward and inward. In this way a true apicolysis is accomplished. To render the collapse permanent the first rib must be extensively resected. The resection always goes considerably beyond the scaleni and the rib is cut in front of the infraclavicular vein, hence in the region of the chondrocostal junction.

The muscles are sutured in a single layer with catgut. A long drain with multiple openings is laid the whole length of the operative field below the muscle suture and is brought out through a small opening made with the bistoury below the incision. The end of the drain is placed in a beaker of oxy-cyanide at the foot of the bed.

During the first forty-eight hours after the operation a little morphine, camphorated oil and adrenalin are given by rectum. The drain is removed on the second or third day.

The end results of this operation have been excellent and will be published later. PAGE

Hedblom C. A. Anterolateral Costectomy for Inadequate Collapse Following Posterior Extra-pleural Thoracoplasty. *Arch Surg* 1930 x 1 112-114

Pulmonary collapse or compression offers hope of curing patients with pulmonary tuberculosis who are not benefited by sanatorium treatment as it places the diseased lung at rest. It is never so complete after posterior extrapleural thoracoplasty as in complete pneumothorax. Many failures of posterior extrapleural thoracoplasty to effect a cure are due to inadequacy of the collapse. Incomplete collapse may be due to inflammatory stiffening of the lung or chest wall or the regeneration of ribs.

Anterolateral costectomy following posterior thoracoplasty consists of subperiosteal resection of the remaining rib segments. The indications for this operation are persistent or recurrent symptoms referable to an incompletely collapsed lung or to

unobliterated pulmonary or pleural cavities. The operation completely compresses or obliterates the cavities of the lungs and pleura or reduces them to minimal size. It is not difficult and is relatively well tolerated. By making possible an adequate degree of collapse in multiple stages at relatively long intervals it extends the indications for pulmonary collapse to patients whose condition is too poor for a two-stage or three-stage operation. It is the logical follow-through method for cases in which the compression produced by anterior thoracoplasty is inadequate.

The author reports twenty-six cases in which anterolateral costectomy was done. There was one death from sepsis and one from hemorrhage. In all of these cases maximal pulmonary compression was obtained. J. DANIEL WILLEM, M.D.

McCrae T. Bronchial Neoplasms. Clinical Features. *Arch Otolaryngol* 1930 xii 727

McCrae reviews sixty-one proved cases of bronchial neoplasm. He states that the clinical features of such tumors are not characteristic. The most prominent symptom are cough, pain and hemoptysis. In the diagnosis, early bronchoscopic examination is important. NATHAN N. CROWN, M.D.

Jackson C. Malignant Growths of the Lung. Bronchoscopic Diagnosis. *Arch Otolaryngol* 1930 xii 747

The diagnosis of primarily endobronchial new growths can be made early by bronchoscopic biopsy. In cancer of the parenchyma of the lung, in which the bronchus is not invaded until late, a positive diagnosis by bronchoscopy cannot be made early. However, cases of cancer of the parenchyma of the lung constitute only a relatively small group.

Jackson reports six cases in which an endobronchial sarcoma was discovered by bronchoscopic biopsy. Diagnostic bronchoscopy should not be done until a serological test has been made and if this test is positive, not until adequate antisyphilitic treatment has been given. The association of syphilis and malignancy of the lung is rare. Pulmonary tuberculosis is not a contra-indication to bronchoscopy.

In a few cases, bronchoscopic removal of an incipient malignant growth has been accomplished without recurrence. NATHAN N. CROWN, M.D.

Funk E. H. Clinical Manifestations of Primary Bronchial Carcinoma. *J Am Med Ass* 1930 cx 1879

From an analysis of sixty-one cases of primary carcinoma of the bronchus, Funk concludes that the clinical picture varies greatly depending on the location of the neoplasm and the rapidity of its growth. The degree of bronchial obstruction produced, the presence or absence of secondary infection and suppuration, the pressure exerted on adjacent structures, the occurrence of pleural involvement and the influence of local and general metastases. The onset of the symptoms is usually in

sidious. The most frequent symptoms are cough, expectoration, chest pain, hæmoptysis and dyspnoea.

SAMUEL PERLOW, M.D.

Lillienthal H. Giant Sarcoma of the Pleura. A Report of Two Cases with Remarks on Operative Exploration of the Thorax. *A. J. S. G.* 1930, v. Pt. 379.

The author states that giant sarcoma of the pleura or more accurately of the subpleural tissues is extremely rare and the diagnosis is usually first made at autopsy.

Subpleural connective tissue tumors seem to be of two types—small tumors arising from the edges of the lungs which usually are benign and tumors which grow to gigantic proportions sometimes filling the chest and causing death from circulatory disturbances due to the bulk. The large tumors usually originate beneath the costal pleura and rarely if ever produce metastases in spite of their histological sarcomatous appearance.

In the first case reported by the author that of a woman forty-eight years of age the tumor originated on the vertex of the pleura. It was nodular and presented the microscopic appearance of a fibrosarcoma or fibroma with comparatively few tumor cells. Adhesions to the surrounding structures were present.

In the author's second case that of a man forty-five years of age the exact origin of the tumor could not be proved. The diaphragm and pericardium were firmly adherent. Three unsuccessful attempts were made to remove the neoplasm by operation. At the first operation the pathological diagnosis of the tissue excised was fibroma or possibly fibrosarcoma of a low grade of malignancy whereas at the third operation it was soft portions polymorphous cell sarcoma with necrosis, firm portions hard fibroma. The neoplasm changed in both its clinical and histological character and ultimately produced a metastasis in the other lung.

In conclusion the author says when a symptomless mass in the chest is discovered incidentally on routine roentgen examination immediate intervention is not necessary even for accuracy of diagnosis but repeat observations should be made and if any increase in the size of the neoplasm is noted or any symptoms develop a full investigation including if necessary exploratory operation is indicated. In such cases early operation may reveal an essentially innocent and removable growth which if left to itself would increase in size and become hopeless.

### ESOPHAGUS AND MEDIASTINUM

Brown S. and Reincke H. G. The Roentgenologic Study of the Superior and Posterior Mediastinum. *A. J. S. G.* 1933, 45.

The authors state that no study of the superior and posterior mediastinum is complete unless both anteroposterior and lateral roentgenograms are made. The lateral roentgenogram often yields more

valuable information than the anteroposterior roentgenogram. In the latter several dense structures such as the sternum, spine, heart and great blood vessels are superimposed and more or less obscure the soft structures of the mediastinum. A true lateral view is of greater aid than an oblique view.

The structures discussed in greatest detail by the authors are the trachea, oesophagus and aorta. Since their position as shown in the anteroposterior view is familiar the authors describe chiefly deviations in their position as revealed by the lateral view. The normal and abnormal relationships are shown in numerous roentgenograms. Such pathological conditions as oesophageal diverticula, retrotracheal goiter and tumors, dilatations and tumors of the oesophagus, fistulous communications between the trachea and oesophagus and aneurism of the aorta may produce distortions of the tracheal shadow in the lateral view which yield valuable information as to the nature, location and extent of the lesion. The lateral projection of the barium-filled oesophagus may disclose important findings relative to such conditions as enlarged tracheal glands, cardiac lesions, diaphragmatic hernia, perforation into the mediastinal tissues and oesophageal strictures, diverticula and diverticula. Abnormalities of the aorta not apparent in the anteroposterior view may be apparent in the lateral view. The demonstration of enlarged glands or tumors in the posterior mediastinum is greatly facilitated by the lateral view. Occasionally the lateral view discloses the exact nature of a lesion causing abnormal shadows in the region of the posterior mediastinum, such as a spinal abscess.

ABRAHAM HARRIS, M.D.

Pancoa T. H. K. Roentgenology of the Thymus in Infancy and the Differential Diagnosis of Enlarged Thymus and Its Treatment. *Am. J. S. G.* 1933, 74.

The author states that the thymic menace in infants and young children is largely a matter of tracheal stenosis with relaxation of the soft tissues of the upper respiratory tract. A most serious complication is paralysis of the recurrent laryngeal nerves.

In the past the diagnosis of thymic enlargement was based largely on erroneous roentgenological evidence. The only definite and reliable signs of an enlarged or potentially dangerous gland are abnormal narrowing or buckling of the trachea at the thoracic inlet as it passes over the apex of the gland which is shown only in the lateral view of the chest and lateral deviation of the trachea which is shown in the sagittal view. Unusual width of the gland shadow is of no particular significance. A gland producing a narrow shadow is likely to be inherently more dangerous than a wide one as is evident from the sagittal roentgenogram.

The naturally preponderant gland of infancy may be blamed for obstructive phenomena for which it is in no way responsible. The manner must await a roentgenological technique which will en-

able him to detect any other form of obstruction of the upper respiratory tract which may be demonstrated with the X ray such as foreign bodies the effects of obstructive specific laryngeal infections on the lumen of the larynx postdiphtheritic and other forms of acquired or congenital stenosis retropharyngeal and retrotracheal abscess adenoids atelectasis and unusual collapse of soft tissues. He must bear in mind certain conditions which may confuse the diagnosis such as asthma whooping cough meningitis and congenital heart lesions. When the symptoms persist after apparently adequate reduction of the size of the gland the complication of paralysis of the recurrent laryngeal nerves must be considered.

Röntgenological studies of the respiratory organs of infants and young children should always include the chest neck and nasopharynx. Sagittal and lateral views must always be made during both phases of respiration and preferably with the child in the erect position. The author describes the technique in detail.

The treatment of enlarged thymus deals with a lymphatic structure which is extremely sensitive to irradiation. Therefore the dose applied should be no larger than is absolutely necessary to reduce the gland to a safe size. It will depend upon the age and size of the child and the thickness of the chest wall. In the cases of very young infants the author uses from one tenth to one fourth of a mild skin erythema dose with the following factors: 130 kv, a filter of 5 mm of aluminum and a skin target distance of 9 1/2 in. Only the thymic area is exposed. In the cases of children from four months to a year old he gives from one third to one half of an erythema dose depending on the age and the size of the child. The treatment is always preceded by a thorough examination of the neck and chest. When the symptoms persist after the first treatment a second application is given after a week or ten days. Further treatment may be necessary but the average number of applications in cases without recurrence is two. Recurrences are to be expected in a fairly large percentage of cases.

LEO M. DAVIDOFF M.D.

Baer M. The Recognition of Cancers of the Thymus (Zur Kenntnis der Thymuskrebs). *Schweiz med Wchsr* 1930 1: 732.

The first case reported was that of a man sixty-nine years old whose symptoms began about six months previous to his admission to the hospital with slight swelling and painful tension in the face and both arms. Later there was difficulty in breathing associated with coughing a little expectoration and sticking pains in the chest. There was no fever swelling of the lymph glands or edema but a slight polynuclear leucocytosis was found. Eventually hemorrhagic pleurisy developed on the right side with marked symptoms of stasis and the development of venous collaterals in the face chest and back. A diagnosis of intrathoracic tumor was made

but roentgenography for intrathoracic tumor was negative. Death occurred fourteen days after the patient's admission to the hospital. Autopsy disclosed a large mediastinal tumor which compressed the upper portion of the vena cava and had formed metastases in the liver pleura and pericardium. Other findings were hydrothorax on the right side and hydropneumothorax. Histological examination proved the tumor to be a large celled solid simple carcinoma with wide reticulated bands of large polyhedral cells showing numerous mitoses. Certain areas of the central region presented beginning hornification and necroses. There were no Hassall's corpuscles.

The second case was that of a man thirty-four years old whose illness began six months previously with node formation on the neck and severe pain in all parts of the body. Treatment for rheumatism had been without effect. The patient lost strength and became emaciated. On physical examination the upper air passages were found normal but indolent masses of lymph nodes were discovered on both sides of the neck and in the left supraclavicular fossa. The thoracic and abdominal organs and the Wassermann reaction were negative. Examination of the blood revealed anemia with a few toxic forms of leucocytes and a slight leucocytosis. Roentgenography disclosed marked widening and shadowing of the entire mediastinum. Esophagoscopy was negative. Bronchoscopy revealed marked constriction and rigidity of the bronchial branches. The bronchial mucosa was normal. A biopsy specimen from the cervical lymph nodes showed carcinoma. Lead treatment resulted in rapid aggravation of the condition. Death resulted after increasing dyspnea which usually occurred in attacks.

Autopsy revealed a large tumor in the anterior mediastinum with metastases in the mediastinal bronchial supraclavicular retroperitoneal and mesenteric lymph nodes and in the pleura pericardium spine liver and dura. Histological examination showed the tumor to be a small celled simple solid carcinoma with quite broad strands. Toward the center of the neoplasm there were hornified and necrotic areas and fatty stratified spheres similar to Hassall's corpuscles. Hassall's corpuscles were found also in the metastases in the pleura dura and spine.

Fifty-four definitely proved cases of cancer of the thymus have been reported in the European and American literature up to the present time. The tumor occurs most frequently in males of middle or advanced age. It develops in the anterior mediastinum and in form simulates the infantile thymus. In one third of the cases it metastasizes outside of the thoracic cage. Hassall's corpuscles occur especially in the large celled carcinomata. Their occurrence in the metastases shows that the tumor tissue itself has the power to form them and that such corpuscles occurring in the primary tumors are not necessarily rests from the normal thymus tissue.

TOBLER (Z)

## MISCELLANEOUS

Davidson T. G. Intrathoracic Tumors. Report of Cases. *A. I. S. G.* 930 Pt. 2 1933

Following a brief discussion on the types, etiology, symptoms, diagnosis and treatment of intrathoracic tumors, Davidson reports fifteen cases.

The first case was that of a man twenty years of age who died without operation sixteen hours after his admission to the hospital. Autopsy showed a lymphosarcoma of the thymus gland with bilateral bronchopneumonia.

In Case 2 that of a woman fifty-three years of age, a diagnosis of myxo-angio-endothelioma evidently arising from the pleura was made on the basis of a part of a cyst wall. The patient is still under observation.

Case 3 was that of a man aged sixty years who, as suffering from a lung abscess. Drainage of the abscess was followed by death three days later. Autopsy disclosed primary carcinoma of the lung.

The fourth patient was a woman sixty-six years of age who had a 4+ Wassermann reaction which failed to show improvement under treatment. A roentgenogram of the chest disclosed a mass which is thought to be a primary mediastinal cyst and is becoming larger.

In Case 5 that of a man fifty-three years of age who is still under observation, a probable diagnosis of dermoid cyst of the mediastinum has been made.

In Case 6 that of a woman fifty-one years old, a probable diagnosis of benign cyst of the left lung was made. The patient died, but autopsy was not obtained.

The seventh patient was a girl eleven years of age with a probable diagnosis of benign cyst of the mediastinum. The patient is still under observation.

Case 8 was that of a three-year-old boy with a probable diagnosis of sarcoma of the right kidney which had formed metastases in both lungs. Coffey, Humble, serum treatment and x-ray radiation had been unsuccessful at the time of this report.

In Case 9 that of a woman thirty-eight years of age, autopsy disclosed a carcinoma of the cervix with metastases to the lung.

In Case 10 that of a woman about twenty-seven years of age, a probable diagnosis of endothelioma of lymph nodes in the neck with metastasis to the lung was made. The final result is unknown.

In Case 11 that of a man seventy years of age, a biopsy diagnosis of Hodgkin's disease with extension to the thorax made. Death occurred following acute leukemia.

Case 12 was that of a man with a biopsy diagnosis of Hodgkin's sarcoma with metastasis to both lungs. The diagnosis was confirmed at autopsy.

Case 13 was that of a woman sixty-nine years of age who died of a malignant melanoma of the face with metastases to both lungs, the liver and the spleen. The clinical diagnosis was confirmed by autopsy.

The fourteenth patient was a woman forty-three years of age who died of a recurrent carcinoma of the left breast with direct extension to the pleura and possibly also to the base of the left lung. Permission for autopsy was not obtained.

The fifteenth case was that of a man forty-five years old who died of a teratoid tumor of the right testicle with carcinomatous metastasis throughout the lungs. The clinical diagnosis was confirmed at autopsy.

The author draws the following conclusions:

Intrathoracic tumors, both the benign and the malignant, are more common than was formerly supposed.

Benign tumors of the mediastinum and lungs frequently produce atelectasis and bronchiectasis by pressure.

Primary carcinoma of the lung and pulmonary tuberculosis may co-exist in the same patient.

Abscess and primary carcinoma of the lung often co-exist and it is impossible to tell which is the cause and which the effect.

Benign tumors of the chest should be removed surgically when they are accessible.

Röntgen therapy offers only palliative results in cases of malignant intrathoracic neoplasms.

In the treatment of intrathoracic neoplasms there should be closer co-operation between the internist and the surgeon.

In the discussion of this report, Hedblom stated that bronchoscopy is the most direct and the surest method of establishing the presence of a bronchogenic tumor, but not infrequently the diagnosis may be made by biopsy on a hard cervical or other superficial gland or a superficial tumor. Occasionally clumps of malignant cells may be isolated from the sputum or from aspirated pleural exudate. A definite distinction must be made between primary and metastatic tumors of the lung or the thoracic wall. Hedblom said that in every exploratory thoracotomy he has performed for bronchogenic carcinoma he has found the hilus to be infiltrated by the tumor. Radium implants in such cases seemed to prolong life and relieve the symptoms. Hedblom has drained abscesses secondary to tumor of the lung with marked palliative results.

Hudson stated that the spitting of blood may be an early sign of tumor of the lung and that the developmental period of lung tumors is much longer than was formerly supposed.

Lewald showed slides demonstrating the difficulty in the diagnosis of aneurysm from other tumors in contact with the aorta which seem to pulsate. He cited two cases of dermoid of the lung in which the neoplasm was spontaneously coughed up, also a case successfully operated upon by Lilenthal. He suggested a series of rapidly made cremor as an aid in the differentiation of aneurysm from tumor.

Lilenthal said that we do not look at the tumor merely on a plane. The neoplasm is not merely pushed to the side by the heart; it may be pushed

away from the observer. As it is pushed away from him it becomes larger in all dimensions and as it approaches him it becomes smaller in all dimensions thereby simulating expansile pulsation.

CARL R. STEINLE, M.D.

**Denk, W.** The Surgery of Thoracic and Intra-thoracic Tumors (Beitrag zur Chirurgie der thorakalen und intrathorakalen Tumoren). *Arch f klin Chir* 1930 clv 254.

Nineteen cases of tumorous disease of the thorax and thoracic organs some unusual are reported. The tumors of the bony wall of the thorax included an exostosis of a rib the size of a child's fist and a chondroma the size of a child's head which were removed successfully and a recurrent sarcoma of the tenth rib the size of a fist which was prevented from giving rise to lung metastases for the space of three years by removal and postoperative irradiation. A forty-five year old woman died of pulmonary embolism six days after operation for chondrosarcoma of the apex of the thorax the size of a child's head. Resection of the thoracic wall for recurrent carcinoma of the breast was performed in three cases in one a cure of more than seventeen years duration was obtained. A cyst of the lung the size of an apple which directly adjoined the pericardium and was shelled out bluntly could not be adequately explained even on microscopic examination. Especially noteworthy was the absence of an endothelial lining.

In the operative treatment of pulmonary echinococcus there seems to be a certain tendency against a too radical standpoint and in favor of leaving especially the centrally situated cysts to themselves. In a case in which the author removed a cyst the size of a child's head from the right lung the patient died during convalescence from the operation from a suddenly appearing necrotic focus in the left lung. The

cysts may be removed only in the presence of pleural adhesions.

Three cases of primary sarcoma of the lung which is very rare were observed by the author. In two the tumor could be removed but in one the operation had to be stopped soon after it was begun. The peculiar malignancy of these tumors is emphasized. Even when removal appeared to be radical there was early recurrence. Roentgen irradiation was always without result.

In the diagnosis of pulmonary carcinoma bronchoscopic examination can give valuable aid when the carcinoma is in a bronchus. In one of three cases reviewed it permitted a diagnosis before operation. In the two others operation was done for supposed abscess. Surgeons of the Sauerbruch clinic have called attention to the possibility of such a diagnostic error. Hippocratic fingers do not help in the differential diagnosis as they are seen in both carcinoma and sarcoma of the lung. In two of the cases reviewed operation was followed by temporary improvement.

For dermoids of the mediastinal cavity early operation is recommended to prevent later complications. In a case cited a tensely elastic tumor the size of a child's fist was easily removed.

In discussing neuroma of the sympathetic the author reports a case in which the tumor weighed 1700 gm. This is the largest that has yet been extirpated with success.

Also reported is a case of carcinoma of the thyroid the size of a child's head in which operation was not successful.

Mention is made of the frequent occurrence of eosinophilia (up to 10 per cent) in cases of intra-thoracic tumors and of the mildness of the symptoms that such tumors cause over a long period of time when they are benign. A. BRUNNER (Z)

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Patch F S and Ble G L Granuloma Inguinal Its Prevalence in Canada C 14 M 1 J 1930 x 637

On the basis of four cases of granuloma inguinale coming under observation in one clinic in Montreal the authors call attention to the possibility of the introduction of such tropical or subtropical diseases into Canada. In three of the cases cited the disease was contracted in the tropics. In one it was of local origin.

WILLIAM E. S. CALETON, M.D.

Kirsch H H Pneumococcus Peritonitis (Pneumokknp r t n t s) Z t ill f Ch 1930 p 62

Kirschhoff discusses the symptomatology and therapy of pneumococcus peritonitis on the basis of the twenty-nine cases which came under observation in the Kiel Clinic during the period from 1911 to 1929.

He states that in the female the genitalia are the portal of entry of the infect on more frequently than is generally assumed. All of the patients whose cases are reviewed were females. Twenty-six of them were under fourteen years of age, eleven were seen as adults and the youngest as three years old. Of the twenty-nine patients twelve (41.3 per cent) died. Of these 52.3 per cent had been operated upon in emergency and 12.5 per cent died following an operation which had been delayed to await the falling off of the abscess.

The disease picture was nearly always characterized by a stormy beginning with severe pains throughout the abdomen. As a rule the abdominal walls were not of a wooden hardness but rather of a distendedness which gave to pressure. The form of the abdomen as rounded like a balloon. Tenderness to pressure as diffuse but frequently the most acutely tender spot was located in the region of the appendix (in nine cases). The leucocyte count was generally higher than that of appendicitis. In two instances there was a neutrophilia of 3 per cent. Of the four patients seen by the author himself three had a vulvitis (in one instance pneumococci were demonstrated in the smear from the vulva). Herpes appeared in about half the cases but as a rule it developed late. The pneumococcus was found in the blood at an early stage of the disease.

Exploratory paracentesis is a determinative diagnostic measure which always discloses the pneumococcus in cultures and frequently in the smears. When the diagnosis is certain it is better to wait even in very severe cases until the abscess has become encapsulated in order that it may be drained

through a small puncture wound (incision and drainage from the pouch of Douglas) JASTRAV (Z)

Pfriem B O Mesenteric Lymphangitis as an Abdominal Focus of Infection and a Substrate of Peritonitis and a Connecting Link Between the So-Called Secondary Diseases (Dilemphangitis mesenterialis abdominis) D 1 f k l Suh t t d peritoneal Adh e o u d l l n d g d z r i c h n d n o g e n t z w e t e k a n k h t n l i c h f l l Ch 1931 136

Attention is first called by the author to the fact that whereas after operation for acute appendicitis permanent freedom from symptom can be expected in the large majority of the cases this is not true after operation for chronic appendicitis. Pfriem found similar results in a follow-up of his patients operated upon for gall bladder disease. To explain them he cites his studies on mesenteric lymphangitis—chronic inflammation which causes the lymphatics to become adherent to the serosal leaves and leads to scar formation with a tendency toward shrinkage. This lymphangitis and lymphadenitis extend in the mesenteric folds and may become a severe stormy inflammatory process giving rise to generalized peritonitis. From his observations the author concludes that through a portal of entry (frequently the appendix) which may exhibit only a mild local reaction or lose its character as a focus of infection the infection extends into the lymphatics of the mesentery. After removal of the portal of entry while it still retains the character of a focus of infection the condition may clear up without leaving any changes but in some cases it may assume the character of an insidious disease entity which tends to become latent and runs a variable course. This lymphangitis and lymphadenitis of the peritoneum is much more common than was formerly believed and is a cause of indefinite abdominal symptoms.

The abdominal portals of entry are frequently the lymphatics of the appendix and the ileocecal region. The severity of the wall infection is no index of the infection of the lymphatic vessel of the mesentery. In fact there seems rather to be a definite contrast between the wall infection and the extension in the lymphatic system. It is very probable that peritoneal adhesions as a disease entity have as their basis a chronic serosal lymphangitis as do scars in the region of the mesenteric folds and intestinal adhesions particularly those associated with pericholecystitis and periduodenitis. A long series of recurrent or residual symptoms after the removal of a primary inflammatory focus seems to have their origin in such a condition. To these so-called secondary diseases pancreatitis belongs.

The tendency toward recurrent disturbances can be corrected only by the earliest possible removal of a demonstrated primary focus. This may be found in the appendix, the gall bladder or elsewhere. Operations performed during acute attacks have given the author better results than operations performed between attacks.

JANSEY (Z)

### GASTRO INTESTINAL TRACT

Schoenhauer L. Malignant Tumors of the Digestive Tract (Ueber die böseartigen Geschwülste des Verdauungstraktes). *Deutsche Zeitschr. f. Chir.* 1930 cccv 145

The author reviews the results obtained in 3,062 cases of carcinoma of the digestive tract which were treated during the period from 1901 to 1925.

Of 445 malignant tumors of the mouth, 313 were operated upon radically. Forty-seven of the patients operated upon radically lived more than five years after the operation. Two of them developed a recurrence after six and ten years respectively.

Of 172 tumors of the tongue, 127 were operated upon radically, and of the patients subjected to radical operation, 21 lived more than five years.

Of 132 cases of carcinoma of the esophagus, a radical operation was performed in 4, but was unsuccessful in all.

The author discusses the cases of carcinoma of the stomach in somewhat greater detail. Of 1,567 cases treated in the period from 1901 to 1928, 1,512 were operated upon. The primary mortality of exploratory laparotomy in 305 cases was 13.9 per cent. Of 7 patients who survived the operation for from several to fifteen years, only 1 had a proved diagnosis. In the case of this patient, a laparotomy was performed in 1917 for carcinoma of the pars media and cardiaca with metastases in the great omentum. In 1928 the patient was in good condition and complained only of occasional constipation. Of 116 patients who were treated by jejunostomy, 49 (42.2 per cent) died after the operation. Only 1 survived longer than a year. In 472 cases in which posterior gastroenterostomy was done, the operative mortality was 14.4 per cent. Seventeen of the patients survived the operation more than five years, but histological proof of the diagnosis was lacking. In 518 cases in which a radical operation was done, the primary mortality was 18.3 per cent. Sixty-five (17 per cent) of the patients survived the operation more than five years.

Of 27 patients with tumors of the small intestine (carcinoma, leiomyoma, myosarcoma, lymphosarcoma), 5 (18 per cent) survived operation for more than five years.

Two hundred and eighty-seven cases of carcinoma of the large intestine were treated. Of 48 patients who were treated by enteroanastomosis, 4 survived longer than five years. Of 142 patients who were operated upon radically, 94 were treated by resection and 48 by exteriorization. Of the former, 24 (25.5 per cent) and of the latter, 13 (27 per cent)

survived for more than five years. Of 477 cases of carcinoma of the rectum, 334 (70 per cent) were treated radically and 133 (30 per cent) by colostomy or exploratory laparotomy. Of the 334 radical operations, 133 were resections and 193 were amputations. Of the patients treated by resection, 26 (18.7 per cent) survived for more than five years and of those treated by amputation, 32 (16.5 per cent) were still alive after five years.

Of the total number of 3,062 cases, a cure lasting more than five years was obtained in 234 (7.6 per cent).

WANKLE (Z)

Boston L. N. Gastric Hemorrhage Due to Familial Telangiectasis. *Int. J. Med. Sci.* 1930 clxxxv 798

In a review of the literature the author found the reports of five cases of recurrent bleeding from the alimentary tract accompanied by cutaneous telangiectasis. Three were cases of rectal bleeding, one was a case of oral bleeding, and one was a case of hæmatemesis. Boston adds three cases of recurrent gastric and rectal hemorrhage associated with cutaneous telangiectasis. All of his patients gave a family history of recurrent bleeding from mucous surfaces and stated that they had had their symptoms since early life. One of them was operated upon. When the stomach was opened, two nævi were diagnosed by the surgeon. One died from a gastric hemorrhage and at autopsy three small scars surrounded by highly vascular tissue were found in the stomach wall. The records of these two cases do not indicate that a histological examination was made. The patient with hæmatemesis had recurrent attacks of gastric distress which were relieved only by the taking of food. No gastric studies are included in the records of this case.

The author concludes that familial telangiectasis is the cause of a definite type of hemorrhage from mucous surfaces. It appears that this tendency does not shorten life as all of his patients lived to be over fifty years old.

EARL O. LATIMER, M.D.

De Toni G. Gastroduodenal Ulcers in Children (Sull'ulcera gastroduodenale nel bambino). *Arch. ital. di chir.* 1930 xvi 703

The author says that so-called secondary ulcers are relatively frequent and primary ulcers are very rare in children. In the literature he has been able to find the reports of only forty cases of primary ulcer in children under twelve years of age. To these he adds the case of a child ten years of age. In the latter the syndrome developed suddenly and the author made a diagnosis of gastric ulcer. Severe hemorrhage was followed by death at the end of two weeks. Autopsy revealed an ulcer on the posterior wall of the stomach near the greater curvature. Histological examination showed the lesion to be recent.

In conclusion the author says that as gastroduodenal ulcer usually has a very rapid course in children, operation is indicated whenever such a lesion is suspected in a child.

MARTIN J. DI COLA, M.D.





ulcer excision cautery puncture and pyloroplasty. In the follow up of patients so treated he found that only about 50 per cent were cured and that 30 per cent had developed ulcers at the gastro enteric stoma or a recurrence at the site of the original lesion. These findings were similar to those of a number of Continental surgeons. Accordingly an operation which would remove the factors responsible for the ulcer was sought. Subtotal or partial gastrectomy was found to meet the requirements. This operation consists in the removal of the antrum and part of the body of the stomach together with the pylorus and the affected part of the duodenum followed by re establishment of the connection between the stomach and duodenum or jejunum. After a trial of various techniques a uniform procedure was adopted which has been used since 1923 with routinely good results.

The operation is begun with ligation of the celiac artery. The desired portion of stomach and duodenum is then removed and a gastrojejunal anastomosis is established according to the method of Hofmeister. In the mobilization of the duodenum great care must be taken to avoid entering the pancreatic capsule. The formation of a hematoma around the head of the pancreas or duodenal stump must also be prevented. All raw areas must be carefully covered. Care in the closure of the duodenal stump is necessary to prevent duodenal fistula. If the transverse mesocolon is separated from the posterior wall of the stomach before clamps are applied the danger of injuring the middle colic artery is eliminated. Hemorrhage from the cut end of the stomach can be prevented only by grasping and tying each blood vessel in the wall of the stomach separately.

In the period from 1923 to 1929 405 primary subtotal gastrectomies were done with a mortality of 7.9 per cent (32 deaths). If 4 deaths due to causes not related to the operation are excluded the mortality was 6.9 per cent.

In comparing the results of primary subtotal gastrectomy with those of gastro enterostomy the author cites statistics showing that gastro enterostomy had a mortality as high as or higher than that of subtotal gastrectomy and was followed much more frequently by recurrence of symptoms and gastrojejunal ulcer.

In 105 secondary subtotal gastrectomies reviewed by the author the mortality was 20.9 per cent.

In a total of 516 cases in which a primary or secondary subtotal gastrectomy was done the incidence of recurrence was only 1.1 per cent.

From two tables of cases treated medically the author concludes that after medical treatment a lasting cure is rare and the ultimate mortality is considerably higher than in surgically treated cases.

In the discussion of this report SANTEE cited 69 cases of gastric and duodenal ulcer in which primary gastric resection was performed in the Cornell Division of Bellevue Hospital New York. The mortality was 14.5 per cent. In 202 cases in

which gastro enterostomy was done by the same group of surgeons the mortality was 2.9 per cent and satisfactory results were obtained in 85 per cent. The incidence of recurrence did not exceed 5 per cent.

DOUGLAS reported that in 135 cases treated by gastro enterostomy at St. Luke's Hospital New York the mortality was 2.9 per cent. Of 63 cases which were followed up after a period of five years good results were found in 80 per cent.

ERDMAN reported that at the New York Hospital the mortality of partial gastrectomy was much higher than that reported by Berg. In support of gastro enterostomy he cited among others the statistics of Finney and Moynihan. Finney reported that in 234 cases of duodenal ulcer treated by pyloroplasty or gastro enterostomy a cure or improvement was obtained in 90 per cent and the incidence of marginal and jejunal ulcers after gastro enterostomy does not exceed 5 per cent. Moynihan reported that in his cases treated by gastro enterostomy the mortality was 1 per cent whereas he found the mortality of gastric resection to range from 5 to 10 per cent. Erdman called attention to the fact that partial gastrectomy does not always produce anacidity and that in 17 per cent of cases of duodenal ulcer treated by this procedure on Berg's service persistent hyperacidity was found after the operation.

I EDWARD BISHKOW M.D.

Haberer H. von. Reflections on Our Failures in Gastric and Duodenal Ulcer (Betrachtungen ueber unsere Misserfolge wegen Magen- und Duodenalgeschwueren). *Zentralblatt f. Chir.* 1930 p. 2329.

The author discusses the causes of failure of resection for gastric and duodenal ulcer. Sometimes failure is due to faulty, too extensive resection. It is most frequent after resection for gastritis including ulcerous gastritis. Resection fails also when it is done on the basis of an erroneous diagnosis. Failure when the operation was definitely indicated may be due to inadequately extensive resection. Both the pylorus and the antrum must be removed. Moreover, as long standing callous ulcer of the stomach or duodenum is usually complicated by catarrhal changes in the mucosa, dietetic after treatment should be given for at least nine months. The author considers these changes amenable to treatment and has found that in cases in which they are present the results of resection become better with the lapse of time.

Technical considerations may constitute an important indication for resection. When a Billroth I anastomosis is too narrow it causes signs of stenosis and when the jejunal loop in a Billroth II operation is too long there is stasis. In some cases ulcers may be overlooked especially in the duodenum. The author's technique is described in detail.

Von Haberer states that in the cases of nervous patients reoperation is inadvisable as the prognosis is worse with each operation. He reports a case.

With regard to the indications for the operation von Haberer says that he objects to a time limit as

he has operated with good results in cases in which the lesion was present for less than three years and in cases in which it had been present for more than twenty years.

In conclusion, he reviews the incidence and type of recurrences after resection in his cases. Of 2310 cases, an operation or roentgenologically demonstrated ulcer recurred in only 15 (0.6 per cent). In all, von Haberer has done 127 transverse resections, 706 Billroth II resections, 1276 Billroth I resections, and 201 Billroth I resections with end to side anastomoses. Among these there were 121 radical operations for jejunal ulcer.

Armou J A Les r Curvature Gastropasty  
C n d M l J 03 1 7 6

The author describes a gastropasty which he has performed on dogs and believes might be of special value in the treatment of certain penetrating ulcers located on the posterior surface of the lesser curvature of the stomach.

After applying curved clamps around the part of the stomach to be operated upon, he makes a horse shoe shaped incision through the serous and muscular coats of the anterior surface of the stomach. In order to spare the nerve and blood supply of this part of the stomach the incision begun and ended in form of the lesser curvature. Next a horseshoe shaped incision is made in the mucosa in such a way that a margin of mucous membrane is left projecting beyond the serous and muscular coats. The flap of mucosa is then sutured to a similar flap raised from the posterior surface the ulcer area being thus shut off from the stomach. The mucosa and ulcer are then removed from the exteriorized area and after the original incision in the anterior surface of the stomach has been repaired the serous and muscular coats are sutured back to surface to broad surface.

The author has found that by a slight modification of this technique he is able to make a gastric pouch for experimental purposes and preserve the nerve supply to the pouch. He proposes to do further research on the use of a gastric pouch so formed.

Par D Intsrin l Oc lusion f om Appendicit  
(Q l t t l f pp d t ) A Sud  
l m d d t d l 93 35

The author discusses and reports illustrative cases of: (1) testicular torsion produced by (a) acute appendicitis (b) strangulation of the intestine by the appendix after appendicitis (c) the formation of bands and adhesions after acute appendicitis (d) the formation of adhesions and bands leading from the stump of the appendix to the ileum after appendectomy and (e) peritonitis in the lower part of the abdomen after appendectomy.

Pratt believes that intestinal occlusion on from acute appendicitis is closely related to the treatment of appendicitis and especially to the surgical technique used in appendectomy and the treatment of peritonitis. He has found that in many cases of in-

testinal occlusion developing after removal of the appendix the appendectomy was done through a median incision. He states that a median incision is a poor incision in acute appendicitis as it necessitates the laborious liberation of adhesions and disengagement of the caecum ileum and appendix to reach the operative field. Therefore it is advisable always to use the McBurney incision which leads directly to the appendix and permits appendectomy with minimal trauma separation of the tissues and exteriorization and consequently is less apt to favor the development of cellulitis and the generalization of peritonitis.

Another factor of importance in the prevention of postoperative intestinal occlusion is the establishment of good drainage of the abdominal cavity with complete closure of the operative wound around the drain to re-establish intra-abdominal pressure. Adhesions are inevitable if the incisions are left open. In the presence of peritonitis the appendicular focus and the pelvis should be drained separately—the former through the McBurney incision by a small short drain which should be soon removed and the latter through a large suprapubic drain.

If intestinal occlusion develops in spite of the precautions it must be recognized and treated early. When the patient is able to withstand radical resection of the occlusion in one stage the operation should be performed under general anesthesia and through a median subumbilical incision. If the patient's resistance is poor it is best to make a simple fistula or an anus in an intestinal loop in the cecum under local anesthesia and delay further intervention until the acute phase of the occlusion has passed and the general condition is improved. When the intestine above the site of the occlusion remains only slightly distended by fluid and gas after liberation of the adhesions and band and reestablishment of the intestinal circulation the operation may be concluded by closing the abdominal

all away to a drain. If the intestinal loops are found greatly distended with fluid and gas when the abdomen is opened as is usually the case and the distention renders operative manipulations very difficult an enterotomy may be done and the intestine evacuated directly or by aspiration. As a rule the surgeon is able to liberate the adhesions completely but as the intestine above the site of occlusion is filled with fluid and gas which might be absorbed in their passage through a normal segment of ileum the operation should be completed by an ileal Witzel enterostomy. In cases in which it is apparent that liberation of all of the adhesions would be very difficult or impossible internal derivation—an ileo ileostomy or ileocolostomy—may be done.

In France diverticulitis has received relatively little study, probably because of its rarity. The condition seems to be peculiar to the English and

Americans Of the author's 10 cases seven were those of American and English patients

Constipation is generally believed to be the chief causative factor but on account of the frequent presence of intestinal anomalies congenital causes may be more important

Diverticulosis may exist without producing the slightest symptom and may be recognized only in the course of a roentgenological study for other conditions

When one or more diverticula become inflamed the symptoms are those of a limited colitis A zone along the course of the colon for a variable extent is tender to palpation and because of the spasm the colon frequently feels like a section of hose The patient often suffers from persistent constipation or from mucocutaneous colitis

When the inflammation is sufficiently intense to extend beyond the limit of the diverticulum the pain is more severe abdominal rigidity appears and there is fever When the lesion affects the sigmoid the symptoms are those of a left sided appendicitis Abscesses may form to continue this picture of appendicitis The abscess may evacuate spontaneously into the intestine or the bladder

When pericolic suppuration occurs the resulting adhesions are very dense This is true particularly in the pelvis where the organs may be so firmly adherent that colostomy becomes necessary When the lesion is in the terminal portion of the colon there may be no suppuration but simply a block of infiltration which is easily mistaken for a neoplasm This error was made by the author in two cases Urinary symptoms led to a diagnosis of neoplastic involvement of the bladder

Occasionally an inflamed diverticulum ruptures directly into the general peritoneal cavity This is believed to occur when the diverticulum contains an impacted fecalith

The author reports cases of the various types of diverticulosis and diverticulitis described and supplements the histories with the roentgenograms

Clinically these conditions may suggest spastic mucous or ulcerative colitis left sided appendicitis obstructive neoplasm abdominopelvic tumor or peritonitis from visceral perforation

The final diagnosis must be made by roentgen examination The proctoscope is of little value and may be dangerous Unfortunately the X ray can not reveal the diverticula unless the image happens to be caught in profile However if the examinations are repeated some time after the administration of the barium enema or meal the diverticula will be revealed as opaque areas produced by barium which has not been evacuated from the pouch These shadows have been known to persist as long as sixteen days

When the symptoms are those of stricture of the bowel atropine will relieve the obstruction and rule out cancer

The treatment of mild diverticulitis is limited to the administration of atropine and gentle laxatives

intestinal vaccination and the application of compresses to the abdomen

Surgical treatment during an attack of suppurative diverticulitis consists of drainage of abscesses as in appendicitis or when the symptoms are those of cancer ileosigmoidostomy or colostomy The author has never had occasion to resect or in vaginate diverticula Such operations can be performed only in the absence of active inflammation

ALBERT F. DE GROOT M.D.

Rost Newer Knowledge of the Pathological Physiology of Ileus and Its Value in Practical Therapy (Die neuen Erkenntnisse der pathologischen Physiologie des Ileus und ihre Verwertung fuer die praktische Therapie) *Chirurgia* 1930 11 692

That certain toxic products reach the blood from the bowel in ileus is not denied There is disagreement however as to the severity of their toxic action Physicochemical examination of the blood in ileus reveals that the blood sugar may be slightly elevated but it may also be depressed The findings depend upon the type of animal used and the time that the examination is made The residual nitrogen the protein content of the serum the viscosity the freezing point and the specific gravity rise primarily as a result of vomiting Another cause for the increase in the residual nitrogen is a disturbance of kidney function and the increased protein destruction in this condition which is due to some toxic action There is a fall in the chloride content of the blood which also is to be attributed primarily to the vomiting The theory that the sinking of the chloride level of the blood is an evidence of intoxication seems not to have been proved Studies of the acid base balance of the blood are almost always limited to determinations of the alkali reserve Contrary to the rather general reports of an increased alkali reserve in ileus it must be remembered that the change is recorded in only about one half of the published protocols The vomiting is the chief cause but the reaction to the absorbed intestinal contents may be next in importance The changes in the alkali reserve have also been cited as evidence of intoxication from the bowel but without adequate basis

The toxicity of the intestinal contents in ileus has been studied in the past few years by attempts to isolate the toxic products So far however very varied poisons have been found Williams is inclined to regard death from ileus as the toxic effect of gas bacilli but has insufficient evidence to prove this theory More important advances have been made by investigating the toxicity of animals ill with ileus Normal animals may be killed with the blood from the portal and mesenteric veins of animals with ileus The clinical course of experimental ileus does not correspond closely with that of poisoning from intestinal contents Schoenbauer attempted to explain the failure of the liver to detoxicate the intestinal poisons in ileus by assuming that the toxins penetrate through to the peritoneum

and are there absorbed thus circumventing the liver. The higher mortality in high ileus has been considered evidence of intestinal intoxication on Hoyer it may be explained also by the assumption that the duodenal juices are not resorbed and are lost to the metabolism. Death in ileus is not to be regarded as the result of intoxication from the intestine alone; it is probably due to the interaction of various factors such as the loss of secretion and water displacement, nervous irritation and reflexes.

It is not necessary because of fear of intoxication from the bowel to make more fistulae in ileus than as formerly customary. The formation of high fistulae and resection of undamaged portions of intestine are equally unjustified. Increased intoxication from the absorption of stagnant contents following the release of obstruction is undoubtedly exceptional. At operation the bowels should not be handled. Serum treatment and the use of large quantities of sodium chloride (90 gm in thirty-six hours) are not fully developed for review, but other wise infusion is greatly to be recommended.

K. ST (7)

Ochsner A, Gage J M and Cutting R A.  
The Value of Drugs in the Relief of Ileus. An Experimental Study. J A S S 93 21  
1944

The authors report a comparative experimental study carried out on dogs with regard to the value of various drugs which are employed to stimulate the intestine in the treatment of ileus.

Pituitrin produced a characteristic effect on the blood pressure which showed three phases: (1) a transitory increase which was moderate; (2) a subsequent depression to a value below normal; and (3) a subsequent increase soon thereafter to a level much higher than the previous level. The effects of pituitrin on the gut of normal animals were chiefly a decrease in tone and inhibition of peristaltic movement. In 75 per cent of the animals the amplitude of intestinal movement either remained as before the injection or decreased somewhat. The average decrease was 3.6 mm. In 25 per cent of the animals there was an increase in the amplitude of intestinal movement averaging 5 mm. In six of nine animals with obstruction, noticeable decreases in intestinal tone followed the injection of the extract. In four animals the average decrease in tone was 9.2 mm. The two other animals showed unmeasured decreases. Only one animal showed an increase in tone.

Physostigmine caused an increase in the blood pressure and in the tone of the intestine in all of the animals except one. In the one exception there was a decrease of 10 mm in the intestinal tone lasting twenty minutes. The average increase in tone in fourteen animals in which the effect was seen was 26 mm. The injection of the physostigmine characteristically increased intestinal movement. The average increase in amplitude of the movements was 3.9 mm. The effect of physostigmine on the

intestine of animals with obstruction was an increase in both the tone of the intestine and the amplitude of the contraction. In ten animals there was an average increase in tone of 10.7 mm. In three the tone of the intestine was unaffected. In four the tone fell but the average decrease was only 4 mm. In seven animals a definite increase in movement was noted. The average was 3.8 mm. In six animals movement of the intestines was unaffected.

Cholin produced a rather rapid decrease in the blood pressure. Its effect on intestinal tone and motility was inconstant and insignificant. In only one of four animals was an increase in tone noted and this was relatively slight, being only 8 mm.

Acetylcholine produced a marked decrease in the blood pressure averaging 66.6 mm. Its effect on the intestinal tone was variable. In 40 per cent of the animals there was an increase averaging 21 mm and in 60 per cent a decrease averaging 6 mm.

Litocin produced no constant effect on the intestine.

Erkastin produced no effect on the intestine in four animals and a decrease in the intestinal movement averaging 8.3 mm in six animals. In animals with obstruction the effect exerted on the intestine by peristaltin was inconstant with respect to both tone and amplitude of movement. Three animals showed an increase in tone, one showed a distinct decrease and one showed no effect.

Sodium chloride produced a progressive increase in the tone and the motility of the intestine in both normal animals and animals with obstruction.

Selheim K J. Periduodenitis. S G O 1 840  
1939

Schoemaker defines periduodenitis as a periduodenal condition characterized by adhesions of two types—thick cord-like structures and thin delicate veils. The former are usually secondary to an acute or healed inflammation of the gall bladder, ulcer of the stomach or duodenum, appendicitis or a previous operation in the region in which they are found. The latter occur most commonly on the duodenum from which they spread to the large and small omentum. Occasionally they extend to the pylorus but they almost never involve the stomach. Duodenal adhesions are essential adhesions because no etiological factor is apparent. Their pathological significance is controversial but Schoemaker believes that they may be the cause of a syndrome simulating peptic ulcer distress. He is of the opinion that two factors are involved in their etiology: (1) the pericolic membrane or so-called Jackson's membrane (of which the periduodenal membrane may be a continuation) and (2) the so-called red stomach, a condition due to engorgement of the serosal capillaries of the pyloric antrum in which no leucocytic infiltration, edema or new connective tissue formation is found.

Surgery is contra-indicated in periduodenitis. The treatment should be also general medical and psychotherapy. J. CONN. M. MORA. M.D.

Strauss A A Bloch L Friedman J C Meyer J and Parker M L Subtotal Gastrectomy for Duodenal Ulcer *J Am M Ass* 1930 xcv 1883

This article is based on 221 subtotal gastrectomies for duodenal ulcer in which there were 12 deaths a mortality of 5.4 per cent

From four to six months after subtotal gastrectomy 95 per cent of the patients were able to work full time they were free from symptoms required no medication and showed a gain in weight of from 15 to 30 lb

The acidity following the gastrectomy in the cases reviewed corresponded to that reported by Berg and Lewisohn Two weeks after the operation the free acid ranged from 10 to 15 and the total acidity from 25 to 30 in 5 per cent of the cases and in the remaining 95 per cent there was no free acid and the total acidity ranged from 5 to 10

In every case of duodenal ulcer medical treatment should be given first However if roentgen examination shows a clover leaf deformity little can be expected from medical treatment the majority of such deformities being due to an ulcer of the posterior wall of the duodenum penetrating into and adhering to the pancreas The penetration produces contraction of the duodenum the surrounding mesentery the hepatoduodenal ligament and the capsule of the pancreas with resulting dilatation diverticula formation and deformity of the duodenum about the point of contraction

When young patients with a history of severe hæmorrhage come for treatment with a second hæmorrhage the authors give an immediate blood transfusion If the bleeding stops a subtotal gastrectomy is done after from ten to fourteen days A second blood transfusion is given just before the operation and a third immediately after it if necessary In the cases of patients from fifty to seventy years of age who come for treatment with a severe hæmorrhage the bleeding usually continues because of a more or less advanced arterio sclerosis Many such cases require an operation within from twelve to twenty four hours preceded and followed by blood transfusion

When the duodenum is lifted into view at operation it usually presents punctiform hæmorrhages on its anterior wall which are similar to the conjunctival injection caused by a cinder in the eye The punctiform hæmorrhage is pathognomonic of duodenal ulcer and occurs following simple exposure of the duodenum to the air When the involved area is further irritated with the gloved hand or a sponge the punctiform hæmorrhage becomes more marked It is due to the increased vascularity produced by the chronic duodenitis In the absence of punctiform hæmorrhage the authors doubt the presence of a duodenal ulcer If a clover leaf deformity is shown in the roentgenogram the corresponding deformity can be seen clearly in the duodenum There is usually a contraction with one or two diverticula above it The head of the pancreas is harder than normal and tightly adherent to the pyloric ring or

the first portion of the duodenum The adhesion always means an ulcer of the posterior wall of the duodenum penetrating into the head of the pancreas The peritoneum surrounding the duodenum and the hepatoduodenal ligament are adherent and markedly thickened The stomach wall is thickened in its lower third and sometimes its lower half and if the deformity of the duodenum is very severe the stomach is usually hypertrophied and œdematous and the clinical picture of subacute and chronic gastritis is presented The authors found a penetrating ulcer of the posterior wall of the duodenum in more than 70 per cent of their cases coming to operation

In the treatment all pathological tissue including the first portion of the duodenum and the lower half of the stomach should be removed When about 60 per cent of the stomach is removed the emptying time of the stomach is from thirty to fifty minutes

In performing a subtotal gastrectomy the authors use a no clamp method of the Polya type

CHARLES F DuBOIS M D

Bargen J A Rosenow E C and Fasting G F G Serum Treatment for Chronic Ulcerative Colitis *Arch Int M d* 1930 cli 048

The authors have reported previously on the use of specific vaccines and serum as part of the treatment of chronic ulcerative colitis and have described the type of case most suitable for treatment with specific vaccines They have found whole immune horse serum unsatisfactory because of the frequent severe serum sickness which follows its administration in doses sufficient to produce results As the course of the disease has been favorably influenced by serum in the cases of many very sick patients it is urgent that the factor which causes the distressing serum sickness be reduced or if possible entirely removed

Felton prepared a satisfactory product for use in pneumonia by a simple method of concentration of anti pneumococcus serum Following his suggestions Fasting prepared an antibody solution from whole serum of chronic ulcerative colitis by methods somewhat similar to those used by Felton but in many essentials more satisfactory for the authors purposes

One part of immune serum is diluted with 10 parts of acidulated 5 per cent ether water The reaction is kept at a hydrogen ion concentration near pH 7.0 At this hydrogen ion concentration immune chronic ulcerative colitis serum yields a modified euglobulin containing essential antibodies This euglobulin which settles out in a few hours is collected and then dissolved in a mixture of glycerine and salt The glycerine and salt mixture is of a sufficiently high concentration to act as a preservative The concentrated material is diluted with water and brought to a hydrogen ion concentration of pH 7.8 The refined serum used for injection in clinical cases contains about 2 mgm of nitrogen per cubic centimeter

As this material has yielded strikingly successful results with absence of the former distressing systemic serum effect the authors have been led to extend its use from the severe cases of acute illness to the more chronic and more resistant cases. In the strictest sense there is no such condition as acute ulcerative colitis of this bacterial type. It is merely a matter of degree of chronicity. This fact must be kept in mind in the treatment.

The antibody egg-bulb solution has now been administered in approximately 200 cases of chronic ulcerative colitis. It is given deeply into the muscles. The authors believe that some of the cases have been under observation sufficiently long to justify an expression of opinion as to the value of the treatment. Accordingly, they report the first 50 consecutive cases in which the concentrated serum or antibody solution was employed.

The 50 patients ranged in age between sixteen and sixty years, but 27 of them were under the age of thirty. The duration of the disease varied from six months to eighteen years, but in only 9 cases had symptoms been present for less than a year. In 33 cases the entire large intestine or the large intestine and the terminal portion of the ileum were involved by the infection. In 5 the involvement of the large intestine extended from the anus to the hepatic flexure in 2 from the anus to the splenic flexure and in 5 from the anus to the middle of the descending colon. In only 5 cases the involvement of the ileum in roentgenogram made after a barium enema. The degree of malnutrition in most of the cases suggests the severity of the disease. In 17 cases there were complications including such conditions as multiple polyps, rectal stricture, perirectal abscesses, enterocolitis, hemorrhage, arthritis, erythema nodosum, localization and duodenal ulcer. It is impossible to evaluate the effect of which these conditions had on the progress of the disease or its treatment with any person. I observed the patients but is evident that in some instances they had a profoundly unfavorable effect on the results of the treatment. However, of the 24 patients who became free from symptoms only 4 had complications and in these the complications were of the less severe type. The suggestion is entered that the patients with uncomplicated chronic ulcerative colitis are best treated by attempts to immunize them against the causative organism. The results from this form of treatment surpass those of other methods including operation and irrigation of the colon with medicated solutions.

All of the patients are living, more than a year after treatment with the antibody solution except one who died following operation for a ruptured appendix several months after becoming free from the symptoms of chronic ulcerative colitis.

Twenty-four patients became free from symptoms. 13 became from 75 to 90 per cent well and 6 were benefited at least 50 per cent. In only 7 cases was the treatment followed by only slight or no change. These 7 cases were either severe long

standing cases with extensive involvement of the colon and destruction or with serious complications such as multiple polyps or stricture.

Certain factors seemed to have a bearing on the recurrence of symptoms after the patients had become clinically well. One of the most important seemed to be failure to remove possible foci of infection. Acute infections of the upper part of the respiratory tract are poorly borne by patients who have had chronic ulcerative colitis. The extent of involvement, the length of time a patient had the disease and the patient's age and resistance to infection are factors bearing on recurrence. Cases of the so-called hemorrhagic type in which severe hemorrhages occur respond poorly and are prone to progress unfavorably. The functional end result must not be lost sight of. Whereas in some of the cases classified only as benefited the progress of the infection has undoubtedly been checked, strictures and diffuse narrowing of the colon interfering materially with proper absorption and elimination cause difficulty even when the general condition is excellent.

The authors believe it is incorrect to speak of curing chronic ulcerative colitis, that controlling is the proper expression. As in many other devastating infections, the patients are always obliged to do certain things for their future welfare. Therefore it seems important for them who have overcome an attack of chronic ulcerative colitis to receive the vaccine periodically. Just how often the treatments should be repeated is still a problematical.

Recently with aging of the serum and improvement in method of precipitation the authors have obtained a more rapid response than in the cases reported in this article. However, it is still too soon for the permanent results of the method to be known.

Larimer, J. W. Roentgen diagnosis of the Appendix  
Surg. 6 Oct. 93, 19

Chronic appendicitis frequently creates a clinical syndrome simulating the syndrome of duodenal ulcer which can be differentiated only by roentgen examination of the gastrointestinal tract. As it appears that the normal human appendix has a vigorous motility and therefore may empty itself of barium before roentgenograms can be made non-invasively upon repeated observations may be taken to indicate pathologic occlusion only when it is supported by secondary signs. Chief among the latter is tenderness. Visual examination gives evidence of pathologic change only by revealing an altered structure.

In a series of 4019 complete roentgen examinations of the gastrointestinal tract significant appendiceal findings were obtained almost 50 times as often with visualization as with non-visualization. Definite signs of pathologic change were found in 50 per cent of appendices which were visualized as compared with only 53 per cent of those which were not visualized. Structural

changes of the appendix are revealed by the shape of the barium filled lumen. Pathognomonic of anatomical change are strictures, filiform reduction of the lumen, stiffening of the wall and bulbous distention which may become cystic dilatation. However these findings alone are not conclusive evidence of clinical appendicitis as they may be only residual.

Abnormal position of the appendix, impairment of appendiceal motility and retained fecal masses which may later precipitate an acute attack of appendicitis can be well demonstrated with the roentgen ray. In appendiceal abscess there is a palpable mass which on fluoroscopic examination is found to be situated in the appendiceal area to displace the terminal ileum and to deform the caecum.

As the findings of roentgen examination in 358 cases were confirmed at operation, the author concludes that the use of the roentgen ray in the diagnosis of appendiceal conditions is justified.

WILBUR BAILEY M.D.

Richard A. and Asselin J. Twenty Four Cases of Appendicitis with Peritonitis. A Comparative Study of the Treatment and the Postoperative Course (24 observations de péritonite appendiculaire. Étude comparative du traitement et des suites opératoires). *Bull et mém Soc de chir.* 1930 1: 1050.

The cases reviewed all those of children are divided into two groups. Those of the first group were treated by the author according to the procedure advocated by Ombredanne, the chief feature of which is closure of the peritoneum without drainage. Those of the second group were operated upon by other surgeons who employed what might be termed routine methods such as tube drainage.

The authors' method includes (1) removal of the appendix regardless of the stage of the disease in which the case is seen, (2) meticulous protection of the abdominal wound and the surrounding peritoneal surfaces during the operation, (3) mechanical cleansing of the field after removal of the appendix, (4) lavage of the surfaces with ether, and (5) closure of the peritoneum without drainage in most cases, closure of the peritoneum with drainage of the abdominal wall in others, and the application of a Mikulicz tampon in a few cases.

The peritoneum is closed routinely in all cases during the second or third day, that is to say when there is a diffuse purulent peritonitis without necrotic lesions. Experience has shown that when this is done the postoperative course is smoother, the general condition is better, and complications are less frequent than when drainage is employed. It is of little importance whether the muscles and skin are closed or not. Often it is best to close only the peritoneum in order to avoid suppuration in the abdominal wall.

When the peritonitis has gone to the fourth day and necrosis of the peritoneum has occurred, it is necessary to decide between complete closure and the application of a Mikulicz drain. The latter

course is the more prudent. A tube, rubber tissue and gauze strip are believed to be valueless and even dangerous. A tube should be employed only when an abscess has formed.

All of the authors' patients recovered. In every case the postoperative course was very smooth and recovery very prompt.

It appears that postoperative eventration is less to be feared after Mikulicz drainage than after tube drainage.

In the cases which were treated by surgeons making free use of drainage, usually of the iliac fossa and the cul de sac, convalescence was prolonged by continued fever and persistent wound suppuration. Herniae were frequent. In the one fatal case only drainage of the abdomen was done at first. Secondary abscesses followed and the patient succumbed after removal of the appendix and the application of a Mikulicz drain.

ALBERT F. DE GROAT M.D.

Deaver J. B. Cancer of the Rectum. *Surg Clin North Am.* 1930 1: 1235.

Deaver urges early diagnosis and treatment of cancer of the rectum. He says that irritation in the form of chronic ulcer, fistula, fissure, stricture, or simple tumor is an etiological factor. In the majority of cases the lesion begins as a simple adenoma.

The early symptoms are not impressive. A history of alternating attacks of constipation and diarrhoea in a person past middle age is suggestive of cancer. Blood and mucus in the stools are significant objective findings. The most common cancers of the rectum are adenocarcinoma of the papilliferous adenoid or mucoid variety.

Rectal cancer occurs most frequently at the recto-sigmoid juncture where it soon produces stenosis. Its least frequent site is the anus. Cancer of the ampulla is most insidious in its onset and progress.

Cancer spreads outside the rectal wall through efferent lymphatics connecting with an extramural lymphatic system. Other plexuses then establish extensive and intimate communications with important neighboring organs. Portal emboli produce metastasis to the liver.

The treatment is surgical. Most cases come for treatment after they are well advanced. In advanced cases all that can be done is colostomy. Radium therapy is usually inefficacious as the most common type of rectal cancer, the adenocarcinoma, is the most resistant type.

In Deaver's series of operable cases, the Kraske operation with certain modifications was the procedure of choice.

NATHAN V. CROHN M.D.

Hayden E. P. and Shedden W. M. Carcinoma of the Rectum. A Study of 300 Cases. *Surg Gynec & Obst.* 1930 1: 783.

The authors review 303 cases of cancer of the rectum in which a clinical diagnosis was made in the period between 1912 and 1928. They state that the most dangerous precancerous lesion in the rectum



is the adenomatous polyp. Rectal cancer is most common in the fifth decade of life.

Of the cases reviewed a family history of cancer was given in only 7 per cent. Of 101 cases in which the cancer was graded malignant adenoma and adenocarcinoma Grade 1 the two lowest grades of malignancy were found in 77 per cent.

In the diagnosis biopsy is always advisable and never harmful. A change in bowel habits, bleeding and rectal pain should all suggest the possibility of cancer even when hemorrhoids are visible. In 95 per cent of the cases digital examination is sufficient for the diagnosis.

Every cancer of the rectum is operable if it is discovered early enough. Rectal cancer remains operable longer than most other cancers. Obstruction necessitating emergency colostomy is rare. Colostomy is always necessary as an adjunct to radical operation.

Of the entire series of patients whose cases are reviewed only 21 who had a positive pathological diagnosis of cancer are alive without symptoms. All of the latter were subjected to a complete operation.

A radical resection by one of several methods and including colostomy offers the best and practically the only chance of cure. In the cases reviewed radical operation definitely prolonged the life of 47 patients who ultimately died of recurrence.

Radium and the X-ray as used at present must be considered purely palliative agents in cancer of the rectum. In the cases reviewed the patients receiving no treatment lived about the same length of time as those treated by irradiation. Changes in the technique of irradiation may in the future improve the results.

Surgical diathermy is of value to reduce the bulk of an inoperable growth.

Cutting R. A. Carcinoma of the Anus and Rectum 4 / 5 5 93 x 547

Polyps and rectal adenomata are preëminent causes of rectal cancer.

The early symptoms of rectal cancer depend upon whether there is ulceration, stenosis or tumor formation. They consist of changes in bowel habits—constipation, morning diarrhea, discomfort in rectum, pain (early in anal cancer), infrequent in growths above the anus) and bleeding.

More than 50 per cent of rectal cancers are inoperable when they are first diagnosed. The average duration of the symptoms before diagnosis is from nine to twelve months. There are two types of growth: a single elevated ulcer with a necrotic crater and a normal periphery, and a firm granular bleeding mass growing into the lumen which has an indurated base.

The modes of extension are direct extension through the mucous and submucous layers, extension by way of the veins and extension by way of the lymphatics. Direct extension occurs circumferentially and is roughly commensurate with the

duration of the disease. A growth involving three-fourths the circumference of the bowel has probably been present for more than a year. As a rule the fascia propria is invaded only after the growth has attained this size. Venous extension is rare. To prevent lymphatic extension the ischio-rectal fat, the levator ani muscles, the retrorectal lymph gland and pelvic mesocolon must be removed.

The average duration of life in cases of untreated rectal cancer is twenty-one months. In the cases of patients under thirty years of age no cures are obtained. Diffuse lymphatic involvement and fixation do not indicate inoperability as metastases usually occurs late. In 68 per cent of a series of cases coming to autopsy no lymph gland or perirectal tissue involvement was found. A marked tendency toward mucus production indicates relative benignancy.

The Jones 1 stage abdominoperineal operation and the Coffey 2 stage procedure are described and Rankin's review of 600 cases in which these 2 operations, colostomy, posterior resection and the local Quenu-Tuttle perineal excision were employed is cited.

HARRY C. SALTZSTEIN, M.D.

Go don Watson, Sir C. The Treatment of Cancer of the Rectum with Radium B. J. M. J. 193 941

If radium irradiation is to supplant surgery in the treatment of rectal cancer it must be able to cure the disease without a permanent colostomy and leave a rectum which can function. According to the findings of Dukes with regard to the spread of cancer of the rectum, lymphatic invasion does not occur until the lesion has penetrated through the longitudinal coat and the main line of spread is into the retro-rectal space and upward. In a few cases of early mobile carcinoma of the rectum in which it was tried, local resection gave remarkably good results. Therefore, though the evidence seems to be that radium irradiation will destroy an early rectal growth without interfering with function, it will be difficult to prove that radium treatment is superior to local resection in the early stages of the lesion.

In a comparison of surgery and radium irradiation in early rectal cancer it is necessary to consider also the variability of response of adenocarcinoma to radium. Small growths may be destroyed by radium irradiation with little or no deformity, but the ultimate results as regards function depend upon the degree of deformity and fibrosis. Overdosing may cause undesirable sequelae. On the other hand, steps in local resections may narrow the lumen of the rectum quite as often as fibrous strictures from irradiation. The arguments in favor of radium are more important when radical excision rather than local resection is considered. The choice of treatment would be easier if adenocarcinoma could be graded according to radiosensitivity.

In five and one-half years ending June 1, 1930, 121 cases of cancer of the rectum, the majority of which were regarded as inoperable, were treated with ra-

dium During the same period over 60 cases were treated by surgery In a considerable number of the latter the operation was limited to colostomy on account of the presence of secondary deposits The number of operable cases which have been treated by irradiation is too small and the duration of time since the treatment too short to permit a definite opinion as to the end results

The difficulties encountered in efficient irradiation are principally anatomical difficulties interfering with suitable access and the radioresistance which seems to be greater in columnar cell carcinoma than in other types In general the filtration has been increased from 0.5 or 0.6 mm. to 0.8 mm. of platinum A ten day exposure with constant intensity is the method of choice

Disadvantages of radium treatment are that two months or more are required for disappearance of the lesions chronic infection occasionally renders it difficult to determine whether recurrence or inflammation is present at the site of the lesion and healing of the operative wound made for insertion of the radium from behind is long delayed In cases of operable lesions involving the perineal portion of the rectum exclusive of anal carcinoma radium should be used only if surgery is refused or contra-indicated A considerable number of higher lesions have been treated by the transperitoneal route with the use of radon seed in preference to radium needles because the former cause less disturbance to the peritoneum

The use of radium in an advanced growth in the upper part of the rectum or the lower portion of the sigmoid is entirely justified Squamous cell carcinomata of the anus which have not infiltrated deeply into the ischio-rectal fossa and have not invaded the inguinal glands seem to be amenable to interstitial irradiation with the possibility of immediate initial cure

In advanced inoperable cases it is questionable whether irradiation adds anything to colostomy since marked improvement often follows colostomy alone The problem in irradiation is to secure adequate and uniform treatment According to the findings in the particular case the treatment indicated is the transperitoneal introduction of radon seeds or radium needles the mesorectum also being treated or posterior barrage vaginal irradiation intrarectal seeds or a combination of these methods The author cites a case of advanced carcinoma in a patient aged thirty six years in which the prognosis was very grave but the patient was entirely well eighteen months after a total combined dose of 15,000 mg. hrs

Borderline cases offer a fertile field for irradiation In general the use of radon seeds seems less dependable than constant irradiation with radium element but a combination of the two decreases the dosage Primary irradiation if unsuccessful increases the radioresistance

In conclusion the author says that actively growing carcinomata in young persons respond well to radium irradiation whereas slowly growing carcinomata in elderly persons are more resistant If a

growth adequately treated with radium shows little evidence of retrogression after two months further irradiation will probably be useless Secondary irradiation is of less value than primary irradiation In the abdomen and within the lumen of the rectum radon is of more value than radium In inoperable cases radium irradiation is a good palliative measure sometimes resulting in operability with a hope of cure Patients with epithelioma of the anus are benefited by irradiation treatment

A JAMES LARKIN M.D.

Aufses A. H. Skeletal Metastases from Carcinoma of the Rectum Report of Eight Cases *Arch Surg* 1930 xxi Pt 1 916

Aufses adds eight cases of rectal carcinoma complicated by skeletal metastases to the sixteen reported in the literature In the main the most common sites of the metastases in the twenty four cases were those given by von Recklinghausen Given in decreasing order of frequency they were the vertebrae femur ribs skull sternum humerus pelvis sacrum radius scapula and ulna In rectal cancer bone metastases occur late but with sufficient frequency to make their early diagnosis of importance for the relief of pain and the prevention of fractures

JACOB M. MORA M.D.

#### LIVER GALL BLADDER PANCREAS AND SPLEEN

Edington G. H. and McCallum G. The Occurrence of White Bile in Gall Stone Obstruction Note of a Case With a Histological Note *Glasgow M J* 1930 cxiv 257

Edington and McCallum report a case of obstructive jaundice of two months duration in which there was an impacted gall stone in the lower part of the common duct The duct was found on laparotomy to be widely dilated and distended by white bile which was bacteriologically sterile The gall bladder was contracted chronically inflamed and packed with stones and showed emphysema The liver presented fatty infiltration areas of necrosis and bile casts in the bile capillaries The patient died on the table The postmortem pathological report confirmed the operative findings

Reports in the literature seem to warrant the following conclusions as to the production of white bile

- 1 Whether the gall bladder is diseased or not the initial rise of pressure in the obstructed common duct impairs the power of the liver to send down further supplies of bile

- 2 The subsequent fall of pressure in the common duct is due to impairment or failure of the propulsive power of the liver

- 3 The presence of bile in the urine and of icterus shows that the secretory activity of the hepatic cell is not lost

- 4 The delay in the re appearance of bile in the discharge after relief of the obstruction and the

establishment of drainage is due to the time required for recovery from the impairment of function

5 The white bile is due to secretion from the duct wall and the disappearance of bile elements from it is due mainly to absorption by the duct wall

These conclusions do not solve the problem of the clinical infrequency of white bile or explain the general effect on the patient of the accompanying derangement of liver function

I L TH CRANSTON

Rich A R The Pathogenesis of the Forms of Jaundice *Bull J Hepatol* 93

In discussing previous studies of jaundice Rich states that it has been definitely shown that bilirubin is formed outside the epithelial cells especially in the bone marrow spleen and liver and that the reticuloendothelial cells are responsible for its production. The only known source of bile pigment is haemoglobin

Theoretically jaundice may develop under the following conditions (1) if the threshold of the liver for bilirubin excretion becomes greatly raised (2) if bilirubin is produced faster than normal liver cells can excrete it (3) if the excretory mechanism of the liver is so disturbed that the amount of bilirubin normally produced cannot be satisfactorily removed from the blood and (4) if any combination of these conditions occurs. The first and second possibilities are more or less theoretical. It is known that the liver is capable of excreting a much greater quantity of bilirubin than it is normally called upon to excrete. Undoubtedly disturbances of the excretory mechanism of the liver may lead to jaundice. A decrease in the excretory power of the liver cannot occur without a loss of cell function. As a rule jaundice is due to an increase in the amount of bilirubin associated with a decrease in the function of excretion of the liver

The van den Bergh test is of value in differentiating cases with retention of bilirubin in the plasma from those with regurgitation of bile pigment after its excretion by the liver. The direct van den Bergh test indicates that whole bile containing bile acids and cholesterol as well as bilirubin has been regurgitated into the bloodstream. In such cases there is either obstruction of the ducts or necrosis of the liver cells which permits bile to escape from the canalicular into the blood. The indirect van den Bergh reaction shows the presence in the blood of bilirubin which has not been removed by the liver

The author believes that the old classification of jaundice into the obstructive and non-obstructive types should not be used. He prefers to classify it as (1) retention jaundice in which the van den Bergh test shows an indirect reaction and the stools and urine show an increased amount of urobilin and (2) regurgitation jaundice in which there is a direct van den Bergh reaction, the stool contains a decreased amount of urobilin and the urine contains bilirubin and bile salts

The causes of retention jaundice according to Rich are (1) anaemia from anaemia and chronic passive congestion (2) febrile dissection from anaemia and pulmonary consolidation (3) immaturity of the liver cells in the newborn or (4) an undetermined cause such as is responsible for the jaundice associated with Hanot's cirrhosis

In all of the various types of anaemia seen both clinically and experimentally atrophy of the efferent vein of the liver lobule is found. The findings are similar in chronic passive congestion and in experimental animal subjected to a lowered oxygen tension. The author therefore believes that the atrophy of the efferent veins is dependent upon anaemia. He emphasizes however that jaundice will occur in this condition only if there is an overproduction of bilirubin associated with a decrease in the function of the liver. Of a group of cases of paroxysmal haemoglobinuria jaundice occurred only in those in which the anaemia was marked. In cardiac decompensation with chronic passive congestion there is an increase in the bilirubin content of the blood. The jaundice which follows pulmonary infarction in chronic passive congestion associated with cardiac decompensation is due to increased anaemia

In febrile conditions there is a depression of the function of the liver but this produces jaundice only when the bilirubin content of the blood is increased. When in the febrile haemolytic anaemias the effect of the fever is added to the depressing effect of the anaemia the liver may be rendered incapable of excreting the excess of bilirubin. Jaundice may then appear. The jaundice which occurs during the course of lobar pneumonia is attributed by the author to the febrile reaction and the anaemia. Icterus neonatorum is the result of a marked increase in the bilirubin content of the blood and depressed function of the liver

In considering regurgitation jaundice it is important to bear in mind the fact that many agents produce localized zonal damage in the liver. Chloroform carbon tetrachloride and arsenamine cause central necrosis in the lower lobe. Infectious agents attack primarily the midzonal portion of the lobule and eclampsia affects the periportal region. In regurgitation jaundice there is a lesion in the biliary system and rupture of the canalliculi results from increased pressure due to obstruction of the main canal of the hepatic cell

Rowland R P Obstructive Jaundice *Surg* 84

Obstructions of the common bile duct or the common hepatic duct producing jaundice are varied and numerous. They may arise within the lumen or wall of the duct or outside the duct

Early operative interference is indicated in all cases of obstructive jaundice as its risk is small compared with its usual beneficial effect. As operations for the relief of jaundice are rarely urgent though preoperative preparation is possible

To determine whether a stone is present in the common duct it is sometimes necessary to perform a choledochostomy. If a stone is found it may usually be removed through an incision made in the supra duodenal portion of the duct but when it is firmly impacted the use of a retroduodenal or transduodenal route may be necessary.

In obstructive jaundice in which the cause is irremovable and the gall bladder is distended with bile, cholecystogastrostomy is indicated because of the ease with which it may be done and because it is less liable to be followed by ascending infection of the liver than an operation short-circuiting the gall bladder to the duodenum, jejunum or colon.

In a few selected cases, especially those of pancreatitis associated with cholecystitis, thickening of the gall bladder wall and contraction of the gall bladder in a very sick patient, cholecystostomy is the operation of choice.

When the gall bladder is not available for anastomosis either the choledochus or the common hepatic duct may be joined to the duodenum by a lateral or end to side anastomosis over a rubber tube. When the common duct is explored the author always drains it through a tube led out of the abdominal cavity through a stab wound.

The after treatment is important because of the low vitality of the tissues which predisposes to herniation and because of the decrease in liver function.

The mortality of cholecystogastrostomy is under 10 per cent. While short-circuiting operations may be beneficial only temporarily they afford comfort and prolong life.

STANLEY H. MENTZER, M.D.

Miller, S. R. and Waters, C. A. Intravenous Cholecystography and Liver Function Determination. Clinical and Roentgenological Value. *South M. J.* 1930, 1979.

Cholecystography is primarily a study of the function of the liver and gall bladder rather than an examination for liver or gall bladder disease. The authors have found that the intravenous administration of the dye usually does not cause a dangerous reaction and produces more dependable cholecystograms than are obtained from the oral administration of the dye. Any reactions that may occur are manifested by a diffuse erythema, urticaria or a drop in the blood pressure and are promptly relieved by adrenalin. The nausea, vomiting and diarrhea which frequently follow the oral administration of the dye do not occur when the dye is given intravenously. The intravenous administration of the dye should be used only by those who have mastered the technique of intravenous therapy. By such it may be employed in office practice. The authors use 2 gm. of phenoltetraiodophthalein regardless of the body weight.

One hundred and thirty-one consecutive cases in which the intravenous technique was used are reviewed. Patients with severe jaundice due to cholangitis, stone in the common duct and severe liver damage due to ursephenamine were examined with

out causing any reaction. Venous thrombosis followed the procedure in 2 cases but in both of these the examination was technically difficult. Of 4 cases which came to operation the X-ray diagnosis was confirmed in 3 (83.3 per cent). Of the 107 non-operative cases the clinical and X-ray findings agreed in 90 (83.7 per cent).

CARL O. LATIMER, M.D.

Feldman, M. Cholecystography. An Analysis of 500 Cases Observed by Means of the Oral Method. *Radiology* 1930, xv, 675.

Although the intravenous method of cholecystography is slightly more accurate than the oral method, the author believes its greater accuracy is not sufficient to compensate for the more severe reaction it causes. The method employed by Feldman is as follows:

Two flat roentgenograms are first made. From 1 to 26 5-gr. enteric coated capsules of tetraiodophenolphthalein are then given, the number depending on the body weight. At 5 P.M. half of the capsules are given together with a fatty meal to empty the gall bladder. Two hours later the rest are given, 4 every fifteen minutes. No more food or fluids are then permitted until after roentgenograms are taken sixteen hours later. Five roentgenograms are made: 3 on inspiration and 2 on expiration in order to study the mobility of the gall bladder and eliminate the intervening organs. A fatty meal is then given and 2 more roentgenograms are made an hour later to study the contraction of the organ.

This technique is sufficiently accurate for variations in density of the shadow to aid in the diagnosis as in the intravenous method. There are no contraindications to the procedure, no ill effects having followed its use in cases of jaundice or pregnancy.

Of 500 cases examined, a diagnosis of gall bladder disease was made in 287. Of 86 which came to operation, the pre-operative diagnosis was found to be correct in 81 (94 per cent). In 3 of the 5 cases in which the pre-operative diagnosis was incorrect, the error was due to poor filling of the gall bladder and in 1 to faulty interpretation of the roentgenograms. The diagnosis was correct most frequently in cases showing stone and those in which there was no shadow.

MAURICE L. DALE, M.D.

Rewbridge, A. G. and Halpert, B. Roentgen Physiological Studies on the Gall Bladder Experiments with Lipiodol and Brominol Light on the Dog. *J. R. Genol.* 1930, xi, 634.

Following a brief review of the work of other investigators along similar lines, the authors report studies on direct visualization of the gall bladder by withdrawing the gall bladder contents and replacing them with a radiopaque substance. The investigations were undertaken to evaluate the available data obtained by this method and to gain further information regarding the mechanism of the function of the gall bladder.

They injected twenty-six laparotomized dogs with lipiodol or brominol light and examined them roent-

geographically at intervals thereafter. In most of the dogs no shadows were noted after the tenth day and it was found that the brominol light disappeared relatively sooner than the lipiodol. At necropsy droplets of lipiodol or brominol light were found in the contents of the gall bladder in most of the dogs in which the shadow had disappeared. The exit of lipiodol and brominol light occurred spontaneously whenever the orifice of the cystic duct became the lowermost point of the viscus. In dogs in which for some reason this did not occur the lipiodol remained in the gall bladder almost indefinitely.

From their observations the authors conclude that in the dog the gall bladder is not completely emptied with each meal and probably is never emptied completely.

WOLFE HARTUNG AND

Bernhard F. The Dangers of Operations on the Bile Ducts. Tiel, Cau, s and Cont of With Special Consideration of Postoperative Liver Disease. (U b l e C e f a h b e O p e r a t i o n a n d C l l e n g e h U b e n d l i c k m p f u n g m t b d B r u l c h t g u d p o t p t n L e b l n k u n g ) B / k l C h 93 18

A study of 99 fatalities following 457 operations on the bile ducts revealed results which differed variously from Hotz's statistics. Peritonitis which caused one fourth of all fatalities in Hotz's cases was responsible for only one fifth as many in this series falling strikingly behind the other causes of death. The number of fatalities from pulmonary embolism was highest following cholecystectomy and the number from cholemic bleeding was highest after choledochotomy. Manifest icterus was never seen in cases in which death resulted from embolism but was always present in those of fatal cholemic hemorrhage. The latter observation is easily explained. The former suggests that jaundice may protect against pulmonary embolism because it is associated with a decrease in the coagulability of the blood. The deaths from pulmonary complications were fewer than half the number computed by Hotz which may be explained by the fact that almost all of the patients were of the rural type.

The postoperative cardiac complications however seem to be independent of the type of patient. Whereas they were in the place in Hotz's cases in the cases reviewed by the author they came first and were responsible for one fourth of the fatalities. In only one seventh of the cases of death from heart failure after operation were definite autopsy findings made. As a basis for this surprising fact the facts must be considered in addition to the anesthesia and operation as its damaging effect on the heart has been known from experimental and clinical observations. In the statistics the relationship is clearly apparent since although one half of all of the patients who died were icteric twice as many of those who died from heart failure were icteric icterus being 4 times more frequent in the latter group than in the total number of cases. Acetone

to the statistics even the presence of mild icterus favors death from cardiac insufficiency.

Little attention has been paid to death from liver intoxication which in the cases reviewed was as frequent as death from cholemic hemorrhage. To explain it Bernhard experimented on animals. He found that glycogen deficiency in the liver is responsible for the development of postoperative liver intoxications and degenerations and that following mechanical obstruction of the common duct there is disappearance of glycogen although no noteworthy change in the blood sugar level may be demonstrable. The decrease in the glycogen content of the liver cells in obstructive icterus is partially explained by the effect of the bile on an increased diastase destruction of liver glycogen. Also the lack of bile in the bowel and the consequent faulty absorption of fat results in the burning of increased quantities of carbohydrate and increased utilization of liver glycogen. Glycogen fixation by the liver is disturbed by the bile obstruction but is not entirely arrested. Insulin and glucose infusions will increase glycogen synthesis even in bile obstruction an effect of importance in the prevention and treatment of glycogen loss in the liver. Early recognition of this condition is possible by the demonstration of urobilin and urobilinogen in the urine. In addition according to Bernhard's experience there is a fall in the blood sugar and a rise in the residual nitrogen before and immediately after the beginning of liver intoxication. As a decrease in the blood sugar endangers the nutrition of the heart muscle and renders the heart especially sensitive to anesthetics the administration of glucose and insulin is strongly recommended also for this reason. DAVENCO (2)

#### MISCELLANEOUS

Ladd W. E. T. Acute Surgical Abdomen in Children. J. M. J. 1913 XLIV 53

One of the most common abdominal conditions in children is congenital pyloric stenosis. The symptoms usually start in the third week of life with the projectile ejection of vomitus containing ingested food and gastric secretions but no bile. The stools become scanty and are composed of bile mucus and intestinal secretions. The infant loses weight and becomes dehydrated. On physical examination peristaltic waves may be seen in the epigastrium. They run from left to right except just before vomiting when they become reversed. On palpation an olive shaped tumor may be felt just to the right of the midline in the region between the liver and the umbilicus. Relaxation of the abdominal muscles for palpation is best obtained by giving sufficient water to cause vomiting. The moment just before the occurrence of vomiting the pyloric tumor can be felt readily. This method is preferred to the administration of a barium meal and X-ray examination for if surgical interference becomes necessary contraindications hindered by the barium. Among the rarer conditions which may complicate the diagnosis

of pyloric stenosis are atresia and stenosis of the duodenum. In intestinal obstruction the abdomen will not be distended if the obstruction is high and the vomiting effective.

Intussusception is an acute emergency of childhood. Early diagnosis is essential. The condition occurs in the sixth or seventh month of life. The onset is sudden and associated with crying, severe abdominal pain, pallor, sweating and nausea or vomiting. The pain is paroxysmal. Between the spasms when peristalsis is inactive the infant appears perfectly well. The invagination usually starts at the ileocecal valve. At the onset the tumor is usually in the right side. A few hours later it may pass up under the liver margin where it is difficult to palpate. Abdominal distention does not become marked until late in the condition when fecal vomiting and fever occur and the mass can be palpated only by rectal examination.

Meckel's diverticulum may have features in common with intussusception or may be the cause of it. Of the author's series of twenty-eight cases blood was found in the stools in over 50 per cent.

The most common abdominal disease due to bacterial infection which occurs in childhood is appendicitis. This condition develops most frequently between the sixth and eleventh years. Before the third year it is rare. The first symptom is pain. The pain may occur in the right lower quadrant or may be

referred to the epigastrium or the umbilical area. In some cases because of the relatively greater length of the appendix and mesocæcum in the child it may be felt in the pelvis. It is soon followed by nausea or vomiting, leucocytosis and fever. The usual temperature is from 100.5 to 102.5 degrees F. A temperature over 103 degrees F. is sufficiently rare to suggest that the diagnosis is incorrect.

Pyelitis is often confused with appendicitis. An acute attack is frequently ushered in by nausea, vomiting and a moderate degree of abdominal distention. The temperature is usually higher than in appendicitis. During the first forty-eight hours there may be little or no pus in the urine.

Pneumonia, usually central or situated in the lower lobe near the diaphragm, may present symptoms suggesting abdominal disease. While it is frequently diagnosed as appendicitis, it is characterized by rapid and labored respiration and a higher temperature than is found in abdominal conditions. Gradual firm pressure produced by the hand tends to relieve the spasm and decrease the discomfort, whereas in peritoneal inflammation it has the reverse effect.

Other less frequent abdominal conditions in children are acute mesenteric adenitis, primary peritonitis, retroperitoneal iliac abscess (not psoas abscess) and malformations of the urinary tract.

CHARLES F. DuBois, M.D.

## UTERUS

Fr enkel L Cervical Plasti s in Pa ticular the  
 Stu mdo f Op ratton (U b Ce pla t k  
 sbe der d St rmd rf h ) / t lld f  
 G ) k 93 p 4

The difficulties of the usual imputation of the cervix discision or the Emmet method may be avoided by the Sturmdorf operation. In the latter a cone shaped portion of tissue with its base down ward and its apex near the internal os is excised from the center of the cervix and then by an anterior and a posterior suture through respectively the anterior and posterior agnall margin of the incision the wound surfaces are brought together. The suture is introduced through the cervical canal passed over the surface of the wound and through the anterior or posterior cervical wall into the vaginal fornix. When the two sutures are drawn together the agnall edge of the wound comes to lie deep in the cervix so that the cervical wound is covered by vaginal mucosa. If necessary, edge shaped excisions may be made on the right and left sides and the defects closed according to the method of Schroeder.

The healing after the operation is excellent. Leucorrhoea ceases at once. In two cases there was a subsequent pregnancy.

The article contains eight illustrations.

II H. SCHMID (G)

Myer J L A Study of the Effect of Acriflavine  
 Gl en Intra enously on Experiment Uterine  
 Infection in the Dog (Am J Obst & Gyn) 193  
 760

In experiments on dogs the author found that the intra enous injection of an appropriate dose of acriflavine had a beneficial effect on the course of infection of the uterus. The earlier the dye was injected the more definite the effect. In some instances cultures of the non ulated infected uterine horn were sterile after the injection. The favorable effect of the acriflavine on the course of the uterine infection as shown also by the reduction of the body temperature to normal by its use.

From these results the author concludes that acriflavine given intravenously in appropriate dosage is worthy of a trial in early uterine infections.

I I C. NELL MD

Hilfsmann H Th Diagno s of Uteri Carcinoma (Dtsch Wochenschr) 193  
 11 k k 93 57

Hinselmann urges the use of colpocopy in the diagnosis of carcinoma of the uterus. He makes a colposcopic examination routinely in every gynecological case.

Very early carcinomata come under observation extremely seldom. In a series of 9000 cases Hinselmann found only 2 in which the cancer was developed to about the degree described by von Franqu in Stoekel's textbook. The greatest difficulty is in determining whether red areas are to be interpreted as carcinoma. Sometimes biopsy must be done but in many cases this procedure is unnecessary. Hinselmann found leukoplakia in 168 of his case and calculates that it is present in 1 of approximately 90 patients. He believes that all leukoplakias lead to carcinoma. The white color of leukoplakia is due to keratotic or parakeratotic layers added to the stratum granulosum. When the upper layers of epithelium have been cast off the diagnosis is not always possible. On the other hand the diagnosis of intact leukoplakia is always easy by colposcopy. Occasionally the iodine reaction may be used as an aid.

Histologically leukoplakia is of 4 types: (1) atypical cornified epithelium without budding; (2) atypical cornified epithelium with budding; (3) atypical cornified carcinoid epithelium without budding; and (4) atypical cornified carcinoid epithelium with budding. It is carcinoma according to the old definition.

Of 79 histologically studied cases of leukoplakia of the portio which are summarized in a table 31 were of Type 1, 23 were of Types 2 and 24 each were of Types 2 and 3, and the remainder showed various types. Fifteen of the females were distinctly squamous celled carcinomata according to the old terminology.

The author believes that carcinoma of the portio develops from leukoplakic epithelium. (C)

Zeil E Bleedings After the Vaginal  
 Sign of Carcinoma of the Uterus (Dtsch Wochenschr) 193  
 11 k k 93 57  
 Ut ruc c m) Dtsch Wochenschr 93  
 383

Cancer particularly cancer of the female genitalia is today the most frequent cause of death in Germany. In spite of the progress which has been made in treatment by surgery and irradiation the absolute percentage of cures is only from 20 to 35. The campaign against cancer can be successful only as the result of early diagnosis. It is the task of the general practitioner to recognize the condition in its earliest stage.

An important sign of beginning cancer of the female genitalia is bleeding. In some between the two teeth and the tenth years of age a regular bleeding may sometimes be due to cancer. But in some who have passed the menopause their recurrence should always suggest cancer. The author's research

has shown that genital carcinoma is present in more than four fifths of cases of bleeding after the menopause and in about one third of those of hæmorrhage at the time of the menopause. By bleeding after the menopause is meant any bleeding that occurs six months after cessation of the periods. Therefore when gynecological examination discloses no other cause bleeding after the menopause is to be regarded as a sign of genital cancer. Not only the occurrence but also the kind of bleeding must be recorded. A single hæmorrhage after trauma for instance is not apt to be due to malignancy whereas a continuous watery bloody discharge and slight but repeated bleeding on straining coitus or urination is to be regarded as a sign of beginning carcinoma of the uterus.

P. Zweifel has been able to cure by operation 87 per cent of patients coming for treatment with early symptoms. When bleeding is not associated with malignancy it is due to such lesions as erosions, polypi and decubital ulcers and its cause can be easily determined. Whenever the diagnosis is uncertain an exploratory curettage should be done. Better ten times too often than once too seldom. In cases of irradiated myoma bleeding occasionally recurs after a time but can usually be recognized as of the menstrual type and has no relation to postclimacteric bleeding. Since climacteric bleedings i.e. bleedings at the beginning of the menopause are also caused by cancer in one third of the cases every irregular bleeding requires a gynecological examination and if necessary an exploratory curettage to determine its cause. STRAKOSCH (G)

#### ADNEXAL AND PERIUTERINE CONDITIONS

KOVACS F. Malignant Tumors of the Ovary (Ueber die bösartigen Ovarial-tumoren). *Ostsch. Wchsch.* 1930 1: 640

The author reviews the cases of malignant tumor of the ovary which have been seen in the Second Gynecological Clinic of Budapest during the last eleven years.

Of 955 tumors of the ovary 174 (18.2 per cent) were shown histologically to be malignant. The incidence of malignant tumors was highest in the fifth decade of life. Fifty-one (29.3 per cent) of the women with such tumors were nulliparæ or were multiparæ and 32 were primiparæ. Ascites was demonstrable in only 40 per cent of the cases but at laparotomy more or less free fluid was discovered in 55 per cent of the cases. Bilateral tumors were found in 85 cases and distant metastases in 70. Morphologically 152 (15.9 per cent) of the neoplasms were carcinomata, 16 (1.6 per cent) were sarcomata and 6 (0.6 per cent) were teratomata.

Of the carcinomata 56.2 per cent were of the cystic type. Serous cysts with malignant degeneration were observed more frequently than malignant pseudomucinous cysts. The rare combination of dermoid cyst and carcinoma was found in 2 cases both of which showed a true squamous cell car-

cinoma arising in the epidermoid elements of the dermoid. In one of these cases a permanent cure was obtained. In the other death occurred several months after the operation. Krukenberg tumors were noted twice. Ovarian sarcomata could usually be diagnosed only at the time of operation. They were bilateral in 33.3 per cent of the cases and were found most frequently in multiparæ. In 1 case bilateral tuberculous salpingitis was discovered in combination with a solid alveolar carcinoma. The patient who was twenty years of age and showed no sign of ascites was free from recurrence three years after the operation.

Exploratory laparotomy under local anesthesia was performed routinely even in presumably inoperable cases. The primary mortality was 2.3 per cent and the late results were correspondingly less favorable. Only 63 of the women could be re-examined. At the end of more than five years 17 (27.9 per cent) were free from symptoms, 20 (32 per cent) were dead and 5 had recurrences. The remainder were free from symptoms from one to five years after the operation.

Operation was performed by the abdominal route in all cases except 2 in which it was done by the vaginal route. In 30 cases both adnexa were removed and the uterus was amputated supravaginally in 37; only both adnexa were removed and in 30 only the affected ovary was removed. The advisability of taking out both ovaries in cases of unilateral involvement was decided on the basis of the findings of the particular case. Whereas in older women both adnexa were removed on the mere suspicion of malignancy in younger women only one ovary was removed even when there was definite proof of malignancy. That this was safe is evident from the case of a patient who has been free from recurrence for nine years. On the other hand recent investigations carried out by Frankl show that metastases in the myometrium are much more frequent than was hitherto assumed. Therefore at least a supravaginal amputation of the uterus should be done in every case.

E. GOLDBERGER (G)

#### EXTERNAL GENITALIA

ZUBRZYCKA J. The Formation of an Artificial Vagina in a Case in Which the Uterus Was Present (Ueber die Bildung einer künstlichen Scheide bei vorhandener Gebärmutter). *Polska ga lek.* 1930 1: 105

Congenital absence of the vagina was discovered in a twenty-three-year-old girl who had not yet menstruated. The vulva was well developed, the uterus was present and there were normal adnexa on both sides. The patient complained of pains in the lower part of the abdomen which had occurred every month since her sixteenth year.

In February 1909 Schubert's operation was done. The author prefers this operation on account of its low mortality. Healing was smooth and in July



1929 after repeated bacteriological demonstrations of the absence of pathogenic organisms (streptococcus staphylococcus colon bacillus) in the vaginal flora implantation of the portio into the new vaginal canal was done by the abdominal route. The presence of a well formed uterus of almost normal size and of unchanged adnexa was demonstrated. The ovaries bore numerous scars from follicle ruptures. The atretic lower third of the cervical canal was incised the margins were everted to prevent later adhesions and the portio was made fast in the upper end of the canal with partial fornix formation.

Healing was smooth. The first menstruation appeared six weeks after the operation and lasted four days. Examination with the sound after the menstruation showed the length of the uterocervical canal to be 8 cm the width of the vagina 2 fingerbreadths and the internal genital a normal. Four weeks later the second menstruation appeared it lasted four days and was painless. Following her discharge the patient reported that her third menstruation had occurred after a regular interval.

The author states that this case closely resembled Schubert's case of congenital absence of the vagina in which a complete cure was obtained. In the author's case the conditions were more favorable as there were no inflammatory changes in the adnexa on either side. The question as to whether the patient had or had not menstruated before the agiomoplasty cannot be answered but it was evident that ovulation had occurred. Absence of changes in the mucous membrane of the uterine cavity caused by hematomata of the fall pian tube or uterus is not enough to exclude menstruation as the blood could have been forced out into the peritoneal cavity through the tubes by vigorous contractions of the uterus and could then have become absorbed without the development of inflammatory phenomena.

The author believes that no single surgical procedure can be used in all cases of congenital absence or secondary atresia of the vagina. Operation in two stages has great advantages because its technique is easier and it permits exact determination of the condition of the uterus and adnexa. However it has disadvantages in the danger of peritonitis and sepsis and the effects of two severe surgical interventions. In the case reported the author performed the operation in two stages because he wanted to estimate as exactly as possible the procreative capacity of the patient from the condition of the uterus and adnexa. KOWALEWSKI (G)

### MISCELLANEOUS

Young J. M. Menstruation and Irregular Uterine Hemorrhage of Ovarian Origin. *F. & M. J.* 93 93

Menstruation can occur in the absence of ovulation and the corpus luteum. Therefore it cannot be regarded as analogous to pseudo pregnancy in lower animals for which a luteal phase is necessary.

Its place in the cycle of ovulation rules out an analogy between it and pro oestrous bleeding in the lower animals.

In man and monkeys menstruation is a function of the peculiarly hemorrhagic type of implantation of the ovum. The bleeding of menstruation and the bleeding of implantation are homologous in that they occupy the same place in the sex cycle and the external bleeding expresses the escape of the unwanted implantation blood in an infertile or a non-ovulating cycle.

Many of the bleeding disorders erroneously attributed to such conditions as chronic glandular endometritis chronic metritis and fibrosis uterine in reality expressions of disturbances of unknown origin in the ovarian (or combined pituitary-ovarian) regulation and definite clinical entities with correlated structural changes in the ovary can be recognized.

ROLAND S. C. O. M.D.

Bérard and Crol at. Endometrioma of the Sigmoid in a Patient with Bilateral S. Rohrmann's Cysts of the Ovary. *Endométr. d. S. R.* 193 636

The case reported was that of a woman thirty-two years of age who had had signs of occlusion of the intestine and a feeling of weight in the pelvis for about two months. Examination disclosed a mass projecting into the pouch of Douglas and pushing the rectum back. A diagnosis of ovarian cyst possibly bilateral was made.

At operation cysts of both ovaries were found. After their removal two white nodules were discovered on the sigmoid loop about 10 cm above its end. These were set in the tunics of the intestine and suggested fibromatous nodules. As they reduced the caliber of the intestine resection was done. The mesentery was not involved as the nodules were on the free border. The intestine was sutured end-to-end and the wall of the abdomen then closed in three layers around a small drain. Uneventful recovery resulted.

Histological examination showed the nodules to be endometriomata. The usual site of such tumors is the rectovaginal septum.

V. DREXLER M.D.

Sellheim H. Advances in the Treatment of Sterility in the Female. *F. & M. J.* 93 458

The study of sterility in the female entered a new phase with the introduction of the Rubin method of tubal insufflation. Tubal insufflation is of value chiefly for diagnosis. It was at first quite complicated but has been considerably simplified by Sellheim. Sellheim concludes that the fallopian tube is impermeable when the result of three Rubin tests made at different intervals is negative. When the tubes are not easily permeable the dilating effect of the procedure may be of therapeutic value. The

method may be used also to keep patent the new lumen made by salpingostomy

In re examining patients who have been subjected to the Rubin test by other gynecologists Sellheim has frequently obtained other results. When the tubes have been pronounced impermeable he proceeds with great caution. In cases in which the cervix has been grasped with forceps he delays the insufflation for a while because the use of the forceps may have caused contraction of the uterine musculature and the isthmic portion of the tube. Occasionally he finds a tube patent which has been pronounced impermeable. He calls attention to the fact that a leaky insufflation apparatus may give the impression of permeability of the tubes. In the cases of women who have conceived immediately after tubal insufflation he has noted that the pregnancy was remarkably short.

Sellheim has given up roentgenography of the tubes with the use of a contrast medium as it may cause signs of peritoneal irritation. By means of

tubal insufflation he distinguishes easily permeable tubes, tubes which are hard to permeate and impermeable tubes. For sterility in cases of easily permeable tubes he recommends dilatation of the cervix and curettage followed by sexual relations without delay. If conception does not occur in the course of the next three months he dilates the cervix with a Hegar dilator immediately after the menstrual period and washes out the cavity of the uterus with physiological salt solution. This procedure is repeated every three months. For cases in which the tubes are impermeable he recommends salpingostomy followed by insufflation to maintain patency of the lumen or implantation of the tube or ovary into the uterus.

Sellheim has seen benefit from abstinence from sexual relations for a considerable period of time and from balneotherapy. He disapproves of treatment by stimulative roentgen irradiation as he believes it may be more harmful than beneficial.

NUERNBERGER (G)

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Kuncz A. The Importance of Age in the First Pregnancy. (Di B d i n g d l l R t t)  
1 (n G b t) O A t t 93 63

On the basis of carefully compiled statistical data the author attempted to determine the influence of age with regard to complications of pregnancy in primiparae. The total number of deliveries was 6,432 of which 2,650 (41.2 per cent) were those of primiparae. Twenty-six of the mothers were under seventeen years of age, 496 between seventeen and twenty years, 1,361 between twenty and twenty-five years, 558 between twenty-five and thirty years, 142 between thirty and thirty-five years, 51 between thirty-five and forty years, and 116 over forty years at the time of their first delivery. In 90 per cent of the older women the first menstruation, the onset of sexual maturity, occurred between the ages of fourteen and sixteen years.

As regards complications of pregnancy particularly toxæmia, a difference could be discerned between the various age groups. Breech and transverse presentations occurred more frequently in the elderly primiparae. Premature rupture of the membranes was also more common in the older women, probably because of rigidity of the birth passages. Primaries and secondary inert were no more frequent in the older women than in the younger women, but in the former more often necessitated operative termination of the labor. The most commonly performed perineal procedure was episiotomy. The incidence of cesarean operations was highest (43.7 per cent) in the cases of primiparae over forty years of age, as also the incidence of cesarean section. Puerperal complications were most common in women between thirty and thirty-five years of age, but the mortality of these conditions was no higher in the older women than in the younger women.

As a result of his observations the author draws the conclusion that there is little difference in the incidence of complications in young mothers and mothers of more advanced years. While the most favorable age for the first pregnancy is between the eighteenth and twenty-fifth year, delivery offers no great hazards at a later age if it is managed by a well-trained practitioner. Nevertheless, the necessity for cesarean section arises more frequently in the cases of elderly primiparae, particularly when a living child is greatly desired. E. GOLD, M.D.

Thoms H. The Determination of Fetal Mortality in Utero. J. Obst. & G. 93 587

A statistical study of a relatively large number of newborn infants was made to determine the relation

ship of the occiput frontal diameter to fetal length and body weight and the importance of this diameter as an index of fetal maturity. There is a difference in this diameter in the mole and the unmolded head. The author concludes that when the occiput frontal diameter is over 10.5 the body weight may be expected to exceed 2,500 gm.

F. L. CORNELL, M.D.

Selznitz R. H. Placenta Prævia. (Illust. & text) 93 78

This article is a review of 497 cases of placenta prævia which were treated at the Munich University clinic in a period of twenty-two years. The incidence of the condition in 75,000 deliveries was 0.66 per cent. However, the author emphasizes that as complications of pregnancy are observed more frequently in the large obstetrical hospitals, this figure may not be a true index of the frequency of low implantation of the placenta. In Bavarian governmental statistics for the twenty-nine years from 1888 to 1907 the incidence was given as 0.144 per cent.

Schnitzer first discusses the maternal mortality. In the 497 cases the total maternal mortality was 9.2 per cent (46 deaths). As it is justifiable to subtract the deaths of 3 women who had an associated fatal condition which could not have been cured by any form of therapy, the corrected maternal mortality was 8.2 per cent. In 26 of the 43 cases of death from placenta prævia the death was the result of exsanguination and 17 the result of infection. Central implantation of the placenta was about 3 times more frequent than partial implantation. In the cases of death from hemorrhage the blood loss before the patient's admission to the hospital was an important factor. Only 4 women had severe hemorrhage after they entered the hospital; the others arrived in such poor condition that the lives could not have been saved by any procedure. Of the women dying from sepsis 8 had had the uterus packed before their admission to the clinic. Of these 3 had fever when they were first seen. Nine had no previous treatment. Of the 451 who survived 110 (26.4 per cent) had fever and 38 (32 per cent) of these had had tamponade of the uterus before they arrived at the clinic.

The fetal mortality was very high. Of the 502 infants delivered 171 (34.2 per cent) were born dead and of those born alive 115 died sooner or later after birth. The deaths of the latter be ascribable to birth trauma, the absolute infant mortality was 57 per cent. Of the infant which were born dead 72 (6 of which were macerated) were dead at the time the mother entered the clinic or died before operation was performed. If these infants which

could not have been saved by any method of treatment and the infants weighing less than 1000 gm are subtracted from the total number of infants which died the infant mortality is reduced to 26.8 per cent.

The author regards metrorrhysis and tamponade as antiquated methods. While the latter is of value for the temporary arrest of hemorrhage it should not be employed longer than six hours. In the Munich clinic tamponade was used in 5 of the cases reviewed. One of the women so treated died of sepsis twelve days after spontaneous delivery. Metrorrhysis was done in 12 cases without a maternal death but with 6 fetal deaths. Two of 41 women who were delivered spontaneously died from uterine atony. In this group of 58 cases the maternal mortality was only 5 per cent (3 deaths) but the infant mortality was 46.6 per cent (27 deaths). In 46 cases in which the membranes were ruptured artificially there were 2 deaths. The absolute mortality was 4.3 per cent and the corrected mortality 2.2 per cent. Of the 43 infants 23 survived and 23 died. The total infant mortality was therefore 50 per cent. However as 14 (30.5 per cent) of the infants which died were dead at the time the mother entered the clinic and 5 weighed less than 2000 gm the infant mortality may be reduced by 17 deaths and the corrected mortality was only 2.1 per cent. In cases of partial placenta prævia artificial rupture of the membranes is associated with the lowest maternal mortality.

Braxton Hicks version was used in 58 cases—18 of central placenta prævia 37 of partial placenta prævia and 3 of placenta prævia the type of which is not recorded. In this group the maternal mortality was 6.9 per cent (4 deaths). The puerperium was febrile in 11 cases (20.7 per cent). Of the 60 infants 53 (88.3 per cent) died but as 9 died before delivery and 17 were non-viable the infant mortality is reduced to 56.6 per cent (34 deaths). In the 42 cases in which the version was done at the opportune time the maternal mortality was 12 per cent (5 deaths). The author believes that this high mortality refutes the generally accepted theory that version is the best procedure in such cases. The absolute infant mortality was 78.6 per cent (33 deaths). As 5 of the 33 infants died before delivery and 14 weighed less than 2000 gm the corrected infant mortality was 33 per cent (14 deaths).

The procedure of choice among all methods is vaginal cesarean section. At the Munich clinic anterior vaginal hysterotomy is performed regardless of the site of attachment of the placenta. The factors of chief importance in this operation are speed and a proper technique. The author emphasizes that if a faulty technique is used the thinned isthmus will on being incised and drawn down may be further torn with the production of severe hemorrhage. Of the 381 patients whose cases are reviewed 245 were delivered by vaginal cesarean section. In this group there were 24 maternal deaths a mortality of 9.8 per cent. This mortality may be reduced

to 9 per cent as 1 of the women who died was suffering from far advanced tuberculosis and another from carcinoma of the rectum. The puerperium was febrile in 81 cases (36.8 per cent). Of the 46 infants 135 (55 per cent) died but as 19 of those that died were dead before the operation and 67 weighed less than 2000 gm the corrected infant mortality was 20 per cent.

The author considers abdominal cesarean section the most favorable method for mother and child. According to the viewpoint at the Munich Clinic it is indicated only when the patient is referred to the surgeon because of hemorrhage during pregnancy or at the onset of labor. As favorable results may be expected only if the birth canal is aseptic the indications for the procedure even by the extraperitoneal route are still further restricted. Of the cases reviewed the extraperitoneal operation was done in 35 and the intraperitoneal operation in 14. In both groups there were 4 deaths. As the number of cases was small no conclusions as to the success or failure of the abdominal cesarean section are possible. The absolute infant mortality was 28 per cent and the corrected mortality 8 per cent. Of the 50 infants 3 were stillborn and 11 died in the clinic. Of the latter 7 weighed less than 2000 gm 1 died of weakness 2 were monsters and 1 died of pulmonary atelectasis.

The author presents a table which summarizes the results of the methods most commonly used at the Munich Clinic.

From his review Schnitzer draws the following conclusions:

- 1 In cases of partial placenta prævia with only slight hemorrhage artificial rupture of the membranes is the most simple and least dangerous method for mother and child.

- 2 Braxton Hicks version should be employed only when the infant is small and premature.

- 3 Vaginal cesarean section may be performed in all types of cases in which delivery by the natural passages is possible.

- 4 Abdominal cesarean section should be performed only in non-infected cases—those of primiparae at term and especially those of elderly primiparae.

BORNEN (G.)

**Toth I. Hæmorrhage at the End of Pregnancy and Preceding Delivery with Special Consideration of the Treatment of Placenta Prævia** (Ueber Blutungen am Ende der Gravidität und vor der Geburt mit besonderer Berücksichtigung der Therapie der Placenta prævia). *Ost. Woch.* 1930, II, 824.

Among the causes of hemorrhage during pregnancy besides abortion are carcinoma cervical lacerations premature placental separation and placenta prævia. In cases of inoperable carcinoma the author allows the pregnancy to reach full term and then performs cesarean section followed by supravaginal hysterectomy. The carcinomatous stump is treated by roentgen and radium irradiation. Good results are obtained in 7 per cent of the cases.

In the etiology of placental separation the toxæmias of pregnancy play a much more prominent rôle than is shown by statistics. As a result of the increased permeability of the blood vessels produced by the toxins hæmorrhage occurs in the decidua and often leads to only partial separation of the placenta. After delivery numerous crater-like irregularities ranging in size from that of an apple to that of a fist and filled with blood clots are visible on the maternal surface of the detached placenta which is expelled immediately after the child.

In a series of 18418 deliveries at the Second Budapest Maternity Clinic during the last ten years severe hæmorrhage due to premature placental separation occurred in 42 (0.23 per cent). Thirty-five per cent of the women with such a hæmorrhage were primiparæ. The maternal mortality was 10 per cent (4 deaths) and the fetal mortality 62 per cent (7 deaths).

The treatment of placenta prævia is determined by the severity of the condition. For cases with a favorable prognosis the author advises only rupture of the membranes and for cases with moderate anemia Braxton Hicks version or the insertion of a bag. For the most severe cases in which there has been frequent hæmorrhage during pregnancy he advises cesarean section even when the fetus is dead and in the cases of severely exsanguinated multiparæ he favors the cesarean section by supra vaginal hysterectomy. He rejects vaginal cesarean section because in this procedure both the control of bleeding and the delivery of a living child are difficult. Uterine packing should be done only under the most rigid asepsis and only as a temporary procedure to permit transportation to a hospital.

In 2600 deliveries at the Second Budapest Maternity Clinic in the period from 1910 to 1924 placenta prævia occurred in 223 (8.6 per cent). Sixty-three per cent of the patients were primiparæ, 9.2 per cent had transverse presentations, 9.2 per cent had biphæcentos and only 9.2 per cent were delivered spontaneously. These figures show that the mortality of the placenta prævia patients the fetal head first entering the lower uterine segment. Stillbirth occurred in 135 cases (58.9 per cent) and severe uterine atony in 22 cases (9.4 per cent). The placenta was removed manually in 8 per cent of the cases and tamponade of the uterus by Dührsen's method was performed in 8 per cent of the cases. There were 7 maternal deaths from hæmorrhage and from sepsis. The total mortality was 7.2 per cent. In cases of central placenta prævia the maternal mortality was 16 per cent and the fetal mortality 72 per cent.

HARTSTEIN (G.)

KERMAUNER F. The Management of Toxæmias of Pregnancy. (B. handlung der Schwangerschafts- toxiemien). H. K. W. J. Br. 930. 1937.

Kermauner concludes hyperemesis from the group of symptoms caused by pregnancy as from the searches of his pupil Jungmann. He has come to the

conclusion that vomiting depends upon a preexisting constitutional static dynamic weakness which progresses to a state of decompensation during pregnancy. He has occasionally noted defective development of the hypophyseal changes during pregnancy and therefore assumes that there is a hormone deficiency which prevents detoxification of the organism.

The high carbohydrate low protein low fat diet which is recognized as an important prophylactic measure against gestational disorders is prescribed by Kermauner during the latter half of pregnancy instead of from the very onset. For the reduction of water and sodium chloride in cases of threatening eclampsia Kermauner prescribes thyroid tablets (0.3 gm. 3 times daily) alkalies (sodium bicarbonate from 1 to 2 knife points) thyroxin catartics and Upright irradiations. For the most serious cases he advises venesection and the intravenous administration of 5 per cent calcium chloride. As a result of this method of treatment eclampsia developed in only 2 of 155 cases of pre-eclampsia in which series he included all cases with edema and albuminuria. Kermauner urges that determination of the hormone output be made in all cases of pre-eclampsia.

The maternal mortality in his cases of eclampsia was 15.38 per cent. In reviewing his statistics he regrets that early delivery is usually impossible in the cases of eclamptic women because the patients do not enter the hospital soon enough. Kermauner is of the opinion that elderly multiparæ are particularly endangered because the refractive tendency leads to increased metabolic disorders as a result of increased functional demands. Only when diabetes is definitely established during the puerperium is there evidence of recovery from eclampsia. Eclamptic pregnant women are classified by Kermauner as a dystrophy of pregnancy. Treatment of this condition with thyroid extract or eutrisol can apparently be replaced by the well known dietary regime.

R. L. L. (C.)

HILL D. S. F. Delivery of Contracted Pelvis by the Impression Method. S. G. Co. Br. Ob. 1930. 183.

Hillis describes a modification of the Mueller maneuver to determine the relationship of the size of the fetal head at or near term to the size of the pelvic inlet. Both hands are employed. The external hand is placed above the breech of the baby and is sunk deeply toward the maternal spine with the forearm held parallel with the long axis of the mother. The examining finger of the other hand is inserted in the rectum to locate the tips of the ischial spines. If the fetal head can be impressed to the level of the ischial spines or below them no resistance will be offered to engagement at labor. All patients in whom the head cannot be forced below the spine at the beginning of labor should be managed with the possibility of abdominal delivery in mind.

LEO OLD GOLD TEIN MD

## LABOR AND ITS COMPLICATIONS

Clinginger A and Pinsan R Dilatation of the Cervix under Spinal Anesthesia at Term (Au sujet de la dilatation du col de l'utérus à fin de grossesse sous rachianesthésie) *Gynec et obst* 1930 xvi 313

The authors review the results obtained by the Delmas method of dilating the cervix under spinal anesthesia in twenty one cases in which labor was complicated by such conditions as a prolapse of the cord placenta prævia heart disease breech and transverse positions and uterine malformation. The method was successful in eleven cases and failed in ten. In most of the latter a serious tear occurred in the cervix and lower uterine segment or difficulty was experienced during version and extraction. One patient died from rupture of the uterus with hæmorrhage. In the cases in which the cervix was completely effaced there was no difficulty. As a rule dilatation of the cervix and version and extraction have been facilitated by spinal anesthesia.

The authors believe that the Delmas method of artificial dilatation of the cervix is preferable to others thus far employed but that the indications should be determined only by an experienced obstetrician. JACOB I. KLEIN M.D.

Vnux N W The Method of Delivery and End Results of 212 Cases of Occiput Posterior Position 1 *J Obst & Gyn* 1930 xv 78

The diagnosis of the position of the child should be made before the onset of labor if possible and should be established definitely as early as possible after the onset of labor.

In the case of a primipara with a moderately contracted pelvis the possibility of occiput posterior position with difficult labor should be borne in mind.

Whatever the method of delivery selected in cases of occiput posterior position the attempt should be made to keep the amniotic sac intact and to conserve the patient's strength during the long first stage of labor. Interference is not justified until the cervix is fully dilated and effaced and the fetal head is at or near the midpelvis.

In the discussion of this report WATSON recommended changing the occiput posterior position to an occiput anterior position in the latter part of pregnancy.

FOULKROD stated that in at least 50 per cent of the cases of occiput posterior positions seen by him premature rupture of the membranes occurs before labor is begun.

DICKINSON reported that he has tried to limit the use of forceps rotation in occiput posterior positions because unskilled operators do considerable damage to the child and often also to the mother by this procedure.

BAER stated that he favors non interference in occiput posterior positions when labor is progressing normally and there is no disproportion. He believes

that interference is justified only when the progress of the head becomes completely arrested in the pelvis and then only when there is complete dilatation. E. L. CORNELL M.D.

Wu L C Separation of the Symphysis Pubis Complicating Labor *Nat Med J China* 1930 xvi 768

The author reports three cases of separation of the symphysis pubis during labor. In the first case there was a funnel contraction of the pelvis with the head in a persistent occiput posterior position manual rotation failed and the separation resulted from forceps delivery. In the second case that of a para III the separation occurred spontaneously during a rapid second stage of labor. In the third case separation of the symphysis pubis with fracture of the pubic bone resulted from operative delivery and there were complicating injuries to the soft parts.

The literature is reviewed briefly. The separation seldom occurs spontaneously in the majority of cases it is due to operative delivery.

The diagnosis is very easy. During the operative delivery the operator usually hears an unusual noise followed by the sudden disappearance of the obstruction to the progress of the child. Later examination reveals a palpable gap pain and tenderness and the legs are held in an everted and abducted position.

The complication most feared is acute infection of the joint which may be accompanied by urethritis cystitis acute pelvic inflammation abscess formation or even general sepsis.

The treatment consists of providing firm support to the pelvic girdle by means of a tight binder or bands of adhesive plaster applied round the hips.

The prognosis is good. HARRY M. NELSON M.D.

## PUERPERIUM AND ITS COMPLICATIONS

Trillat Michon and Pontus Puerperal Suppurative Ovaritis (Les oaires antérieures puerpérales) *Re franç de gyn et obst* 1930 xv 617

The authors report seven cases of ovarian abscess in which the lesions were limited to the ovary the tube being normal or at least permeable and free from suppuration.

In suppurative ovaritis there may be multiple abscesses an interstitial diffuse ovaritis or a single abscess a parenchymatous ovaritis. The tube is sometimes thickened and sclerosed or shows oedema and congestion but its lumen is permeable. The pyovion is sometimes inflamed and on pressure on the tube a drop of pus may issue from the ostium. This finding favors the hypothesis that the condition is due to an ascending infection. The broad ligament may be normal supple and thin or infiltrated thickened and hard. The microscopic lesions are those ordinarily caused by infection. The majority of ovarian abscesses are abscesses of the corpus

luteum After delivery there are two follicles one old and one new Both may be affected by suppuration

The micro organism most frequently responsible for puerperal suppurative oötitis is the streptococcus Ovarian abscesses are most common after a puerperal infection or pelvic peritonitis The gonococcus may be the cause but is more likely to involve the tube as well as the ovary In occasional cases the colon bacillus and the Koch bacillus is responsible and in exceptional cases the pneumococcus or lberth's bacillus The pus may be sterile because of disappearance of the micro organism

A possible route of invasion which is often followed by the streptococcus is the lymphatic route The gonococcus and the colon bacillus usually cause infection by propagation through the mucosa The integrity of the tube is explained best by the hypothesis that the infection occurs by way of the blood stream

The general symptoms of suppurative oötitis are not characteristic Palpation reveals at the side of the uterus a mass which is generally high hard indolent and regular The mass has a flaccid pebble shape whereas the mass of a tubal collection is shaped more like an egg plant In the majority of cases of suppurative oötitis the clinical diagnosis is adnexitis

The only treatment is surgical The abdominal route is to be preferred Hysterectomy should be performed if the lesions are extensive and bilateral and there is much need of drainage As a rule unilateral removal of the adnexa is sufficient The tube is usually removed with the ovary as it is difficult to separate it However the ideal conservative operation is ablation of the ovary alone While anatomical conditions will often permit a conservative operation it must be borne in mind that the infecting micro organism is often very virulent and extensive drainage may be necessary The Mikulicz drain should be used whenever the lesion is high and the infection is believed to be due to the septicoccus

The immediate prognosis should be very guarded because on account of the possibility of general peritonitis the operation must be considered serious The remote results are excellent When only unilateral removal of the adnexa is done the function of the other ovary remains intact menstruation persists unchanged and the woman may become pregnant P. C.

#### MISCELLANEOUS

O'Leary W. H. F. The Organization and Methods of Practice of the East End Maternity Hospital  
P. R. J. S. C. M. d. L. o. d. 93 1 12

The East End Maternity Hospital London was established in 1884 Up to the end of 1929 there were 51,487 deliveries in this institution with a maternal death rate of 1.35 per 1,000 Since the year 1921 the maternal death rate has been only 0.68 per 1,000 This report is based on 10,376 deliveries

since 1925 Clinical methods not in accordance with modern teaching appear to have contributed to the good results

The hospital now contains 56 beds arranged in wards of from 3 to 8 beds and is under the direct management of a woman superintendent The superintendent has a staff of 6 midwives for the hospital and 2 for the district There are about 30 pupil midwives who do the nursing as part of their training The medical staff consists of 3 general practitioners Control of the medical work is vested in the senior medical officer and a general practitioner About 2,000 women are attended annually Rather more than half are admitted to the hospital and the remainder are attended in their homes

A review of 10,376 obstetrical cases shows that it has been possible to reduce the maternal mortality by at least 75 per cent and to decrease the still birth rate and the number of neonatal deaths The women represented an unselected group of the child bearing women of the neighborhood and were not especially favored by social circumstances There were no deaths from eclampsia nor among the patients who received antenatal care from hemorrhage No patient died from sepsis following normal labor and not 1 of the 233 women attended in their homes died from puerperal causes As 6 of the 7 registered patients who died were seriously ill before labor began it appears that any further maternal reduction in the already low maternal mortality rate would depend upon improvement in the general health of the mother rather than upon increased knowledge or a change in the methods of practice in the hospital

The practice is based upon the development to the full extent of the preventive and conservative aspects of midwifery Great care is expended in obtaining the utmost efficiency from such well established methods as should be within the ability of every well trained medical practitioner Stress is laid upon the importance of care in breech deliveries the treatment of collapse in hemorrhage and a simple practicable and efficient antiseptic technique Early exploration of the uterus in local sepsis is considered of great value Cesarean section is done extremely seldom Although adherence to the fundamental principles of the obstetrical art has proved of great importance this only partly explains the success obtained The factors believed to be chiefly responsible are the sympathetic co-operation between the doctors midwives and patients the carefully thought out organization and the keen interest taken in the work by all concerned  
R. O. L. A. D. S. C. O. M. D.

Faucot H. The Influence of Hereditary Syphilis of the Progenitors on the Prognosis of Congenital Syphilis  
t. u. s. l. p. o. f. t. d. c. n. c. p. t. i. o. n. R. e. v. f. e. d.  
C. C. L. d. b. t. 93 xiv 593

Two types of hereditary syphilis are distinguished—the irulent and the dystrophic one the result

of the direct action of the spirochæte and the other the result of the action of the toxin. However the limits between them can be only artificial since for the development of a dystrophy there must be virulent activity at some time.

The author investigated the function of reproduction in heredosyphilitics by studying families in which the mother, the father or both parents had inherited syphilis. The majority belonged to the first group. The reproductive activity of five heredosyphilitic women, none of whom had fewer than nine pregnancies, is shown in tables. Abortions were numerous. Sometimes the reproductive career began with a series of miscarriages, sometimes a series of miscarriages followed numerous full time pregnancies, and sometimes full time pregnancies and miscarriages were alternated. The whole series of obstetrical stigmata of acquired syphilis were present: hydramnios, congenital malformations, monstrosities, twinning, voluminous placenta, and small atrophic placenta. Most of the women were young and of good physical appearance, but some of them were disfigured. One presented thyroid hypertrophy, exophthalmia, typical dental changes, and positive Hecht and Desmoulières reactions. Her children were very delicate and only two of them survived. This case and two others demonstrate that there is no parallelism between the stigmata of inherited syphilis and the severity with which the product of conception is affected. The prognosis in a given case cannot be determined, but the incidence of fatalities (abortions, stillborn infants, and early deaths) among the descendants can be forecast. In statistics published by the author in 1928 the mortality was 57 per cent. Hereditary

syphilis is more often fatal to the descendants than acquired syphilis.

The cases of two women with a heredosyphilitic husband are summarized in the tables. These women had four abortions in fifteen conceptions. Prematurity and the presence of stigmata and clinical signs were no less frequent than in the cases of maternal heredosyphilis. Twice the Wassermann reaction was positive. It may be concluded that hereditary syphilis is transmitted through the father to the second generation. The heredosyphilitic father may be vigorous and appear to be healthy.

When both parents have hereditary syphilis the results are disastrous. Fruhinsolz reported cases in which there were only four living children from fourteen pregnancies. In the first case studied by Paucot there were two successive abortions and a macerated stillborn fetus. The marriage of cousins brought out unmistakable signs of syphilis which had been almost extinguished in the second generation. Paucot states that the biological reaction set up by pregnancy is more sensitive than any of the humoral reactions.

The results of treatment of the mother during pregnancy are very encouraging. The mortality is decreased at least 6 per cent. It is necessary to resume treatment with each new pregnancy, as abortions and stillbirths occur after pregnancies earned to term by the use of arsenicals and bismuth.

Paucot believes that the spirochæte passes through a larval form, that of an ultravirus, which escapes detection by methods of examination now available. While experimental proof is lacking, clinical facts and serological findings do not disprove this hypothesis.

PACE



# GENITO URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Hartman F A, Aas A H and Culp J F. The Use of Cortin in Addison's Disease. *J Clin Endocrinol* 1930 4: 438

In cases of Addison's disease improvement has been noted after treatment with preparations of the whole adrenal gland or the cortex of the gland. Cortin derived from adrenal cortex enables adrenalized cats and rats to survive indefinitely.

The authors report a case of Addison's disease which was treated successfully with cortin. Twenty-four hours after the patient's admission to the hospital 5 ccm of extract were injected intravenously and thirty minutes later 10 ccm were given subcutaneously. Three and a half hours after the first injection three injections of 10 ccm each were given subcutaneously at intervals of 15 minutes and seventy minutes. Four hours later additional extract being available 10 ccm were injected subcutaneously every hour until a total of 150 ccm had been injected in the twenty-four hour period. As soon as improvement was noted the cortin was gradually reduced until only 20 ccm were given per twenty-four hours. Experiments were then carried out to determine the dosage necessary to prevent relapse. Under treatment with a dosage to meet this requirement the patient remained asymptomatic free.

LUXER H MD

Shapiro I J and Veselen L L. Untoward Results in Bilateral Pyelography. *J Urol* 1930 23: 631

The opaque ureteral catheter was first used by Schmidt and Kolischer in 1901 and the use of an opaque solution to outline the kidney pelvis was introduced by Voelker and von Lichtenberg in 1906. The first opaque solution employed was collargol but as this is extremely toxic it was soon replaced by other solutions such as thiam nitrate, sodium bromide and sodium iodide. At the present time sodium iodide is used most frequently because its toxicity is low and it casts a dense shadow on the X-ray plate.

The introduction of non-toxic solutions for pyelography has given rise to much discussion as to whether pyelography may be done simultaneously on both kidneys. Looley, Thomas and Lindorath perform pyelography on both kidneys at the same time almost routinely but Young, Hayes and Braasch are opposed to this practice.

The authors report five cases in which death occurred after bilateral pyelography and was directly attributable to it. The opaque medium used was a 15 per cent solution of thorium nitrate in two cases and a 25 per cent solution of sodium bromide in one

case and a 12.5 per cent solution of sodium iodide in two cases. In all of the cases the examination was followed by anuria. In four cases the anuria began immediately and in one case on the sixth day. Postmortem examinations were made in four cases. In two it showed extensive infection. In the two others and probably also in the case in which postmortem examination was not made the cause of death was probably the toxic action of the medium.

In conclusion the authors state that as pyelography is a diagnostic procedure it should not be associated with any mortality. They therefore believe it should be done on only one kidney at a time.

CLAUDE D. HOLMES MD

Gautlier and Claes. The Gastro-Intestinal Type of Hydronephrosis (L'hydronephrose à forme gastro-intestinale). *J de méd. Ch. 90* 1931 371

Hydronephrosis is sometimes manifested only by gastrointestinal symptoms due to reflex disturbance of the secretion of the stomach and intestines from the renal distention, compression or linking of the intestines from sudden variations in the size of the kidney and urinary insufficiency from gradual atrophy of the renal parenchyma. There may be dyspepsia with or without pain and with or without secretory disturbances or a syndrome simulating that of mucocomembranous enterocolitis, dysentery, appendicitis, sigmoiditis or a gall bladder condition. Therefore in the diagnosis of cases presenting such symptoms the possibility of latent hydronephrosis should be borne in mind. Indispensable aids in the diagnosis of latent hydronephrosis are ureteral catheterization and pyelography.

The authors report five cases of latent hydronephrosis which was associated with gastrointestinal symptoms.

Case 1 was that of a woman thirty-six years old who for twelve years had been suffering from abdominal pains which had been considered of dyspeptic origin. At laparotomy the stomach was found normal. Later hydronephrosis of the left kidney was disclosed by pyelography. Nephrectomy resulted in cure of the dyspeptic symptoms.

The second case was that of a woman thirty-five years of age who for eight years had suffered from attacks of pain in the right hypochondrium associated with vomiting and had been treated for gastric disturbances. Ultimately polyuria with pollakiuria developed and a swelling appeared in the right lumbar region. Examination of the urinary tract then disclosed hydronephrosis of the right kidney. Nephrectomy was followed by unequivocal recovery.

The third patient was a seventeen year old girl who had had attacks of abdominal pain vomiting constipation and anorexia ever since the age of six months. The urine showed no abnormalities. Pyelography disclosed hydronephrosis of the left kidney. Nephrectomy was done.

The fourth case was that of a man thirty one years old who for ten years had suffered from abdominal distress which at various times had been diagnosed as due to gastritis aerophagy enteritis and appendicitis. During the last attack however there was hæmaturia. Pyelography then demonstrated the presence of hydronephrosis of the right kidney. After nephrectomy the dyspeptic symptoms ceased.

The fifth case was that of a woman of twenty two years who for ten years had had urinary disturbances associated with intestinal colic and alternating constipation and diarrhoea. Examination of the urinary tract disclosed an infected hydronephrosis of the right kidney. Six months after nephrectomy the patient was free from all dyspeptic symptoms.

JACOB E. KLEIN, M.D.

Jasienski. So Called Tuberculous Nephritis and Tuberculous Bacilluria (De la néphrite due tuberculeuse et de la bactériurie tuberculeuse). *J. d'urolog. méd. et chir.* 1930 xxx 245.

The possibility that tuberculous inflammation of the kidneys may occur without tubercle formation was first suggested in France about forty years ago but is still disputed. Some urologists speak of specific and non specific lesions of the kidneys in tuberculous subjects. Others refuse to make this distinction because occasionally following nephrectomy no tubercles are found although the lesions were doubtless produced by the tubercle bacilli which were present in the urine.

Nephritis is an exceptional complication of pulmonary tuberculosis although virulent bacilli are often excreted in the urine. In experiments carried out on guinea pigs the organisms have been found in the apparently non specific lesions of the kidney. Analogous lesions may be seen in certain cases of phthisis.

To explain the etiology of tuberculous nephritis two theories have been advanced. Chauffard attributes the lesions to toxins. Others believe they are due to the local action of the bacilli. The latter view is supported by the experiments of Bernard and Solomon who by injections of bacilli produced exudative lesions of the kidney approximating acute interstitial nephritis. In some of the infiltrating cells tubercle bacilli could occasionally be demonstrated.

As this work had never been confirmed or repeated the author carried out a series of injections of living and dead organisms and of filtrates. It was never possible to demonstrate bacilli in the kidneys but by all three methods degenerative changes occurred in the renal tubules particularly in the ascending loop of Henle.

It is generally believed that the normal kidney can excrete tubercle bacilli without suffering thereby but most urologists are of the opinion that the kidney becomes permeable because of other lesions. In fact many case reports reveal a non specific inflammatory process such as nephrolithiasis tumor or hydronephrosis. However in another group of cases the kidneys show only nephritis.

When one kidney is tuberculous the other kidney may excrete bacilli and cease to do so after removal of the tuberculous kidney. The state of the healthy kidney cannot be determined as conclusions are rendered uncertain by the possibility of technical errors and the healing of minor lesions in that kidney.

The differential diagnosis of renal tuberculosis and tuberculous nephritis is of course important from the surgical standpoint. As a rule the presence of large numbers of pus cells and tubercle bacilli in the urine from one kidney is a sufficient indication of surgical renal tuberculosis. However a small number may be present in tuberculous nephritis a lesion which probably rarely evolves into a surgical tuberculosis. Hence there appears at present to be no certain method of making a distinction. Renal function tests are of little value as their results do not always parallel the amount of kidney destruction and the presence of bladder lesions is not diagnostic because such lesions may be present in the absence of tuberculosis.

The author concludes that the ideal operation nephrectomy in the initial stage of a renal tuberculosis can be performed only at the risk of removing a kidney which is involved merely by an entirely curable nephritis.

ALBERT F. DE GROOT, M.D.

Lino G. Serous Cysts of the Kidney (Delle cisti sierose del rene). *Ann. ital. di chir.* 1930 x 86.

The author believes that renal cysts and cystic kidney represent different stages of the same condition and that hamatic cysts are serous cysts with secondary hæmorrhage.

He reports a case of multilocular cyst in a woman forty three years of age. A diagnosis of pararenal cyst was made but at operation the slightly movable hard swelling in the flank was found to be a large multilocular cyst with numerous communicating compartments of varying size which involved the back of the kidney. When the cyst was punctured with a trocar turbid yellow fluid with a urinary odor was obtained. After partial evacuation nephrectomy was performed. The wound was then sutured in layers and a drainage inserted.

The extirpated mass was lobulated tenacious and furrowed with veins. It had a broad base on the dorsal surface of the kidney. The capsule of the kidney extended over it. Cross section revealed a cystic and a solid zone. The cystic zone consisted of numerous non communicating compartments filled with fluid and separated fibrous septa. The solid zone was renal tissue. MARTIN J. DI COLA, M.D.

Bu ser F Epitl elal Tumo s of the Kidney In th  
Adult (L t m u s e p t h e l l d u c h e  
l d l t ) A h d m l d s t d g a g l  
193 45

This discussion is based on ninety four cancers and e ghteen adenomata of the kidney in adults The cancers were of three types—a nodular an in filtrating and a cystic type The macroscopic and microscop c desc iptions of the three types of cancer and of the adenomata are profusely illustrated ith roentgenograms photographs and photomicro graphs  
AUDREY G Mo GAN MD

K tschmer H L Lelomy ma of the Kidney  
J U l 930 x v 617

Kretschmer reports a case of leiomyoma of the kidney and cites a few cases reported by others He st tes that these tumor s may be divided into two groups those which are small produce no symptoms and are discovered only at autopsy and those which are large and cause symptoms necessitating operation

The case reported by the author was that of a woman si ty four years of age who had had a gastric resection for carcinoma Death occurred three years later At autopsy a small gray nodule which proved to be leiomyoma was found in the right kidney

H J RY L SANF RD MD

Dogliotti A M and Mal no M The inn rva tion of th Kidney and Functional Ope a ti n on th Kidn y D nervatio l l riart lal Sympath etomy and Decapsulation (In r nale d o t ti f n z n l s l r E lone d o t one p t d c p u l ) l l lal d h 930 09

The authors reiew our kno ledge of the anatomy and funct n of the nerves of the kidney and set forth their theory that partial interruption of the nerves leading to the kidney is sufficient to stop renal pain

In st dies of the vasomotor function of the renal nerves n xperiments on fifty two dogs they found vasoco stricor fibers a smaller number of vaso dilator fibers and a double mechanism of vasomotor egulation—direct regulation through the kidney erves and indirect regulation through changes in the general blood pressu e

In experiments on ten dogs they found that re generation of the nerves of the kidney began promptly after the nerve was sectioned and as complete after from four to six month s The regen eration was demonstrated not only by the anatomu cal findngs but also by oncomet ic measurements

In a study of the function f the kidney after total denervation which they made on eight dogs determinng variations in azotemia and the sec e tion of ur ne they noted a decrease in the e cretory cap city of the kidney after the denervation wh ch lasted for from three to six months At the end of that time e cret n was normal or nearly normal Partial denervation was fou d suffi cient to stop kid ney pain and to cause less disturbance of renal function than total denervat on

A study of renal function after simple pe arten l sympathectomy which was carried out by similar methods on two dogs showed that th s operation was follw ed by an increase in the functional cap acity of the kidney for one or two months and an increase in the amount of urine without any special change in the composition of the urine or the degree of azotemia

In studies of the effect of decapsulation on twenty three dogs it was found that the capsule re appeared in from six to eight days The regenerated capsule vas less d stensible than the normal capsule after about seven months it was about one fou th less distensible No collateral circulation developed and the normal transcapsular anastomoses were de stroyed Separate injection of the arte ial and e nous systems with the same pressure showed that for several days after the decapsulation there as distention with an increase in the number of small injectable vessels By the method of artific al circulation it vas found that the decapsul tion was fol low ed by an increase in the circulation hich became apparent after from six to eight days and reached its maximum after from fifteen to twenty days At the end of that time the circulation returned to normal Functional metho ls (decapsulatio a d de terminatio ns of the variations in azotemia and the excretion of urine) sho ed improvement in the func tion of the kidney similar to that follo ing per arten l sympathectomy ith in some cases a decrease i the azotemia  
ALDR V G Mo GAN MD

Walters W and Wight W Dp t l n n Solit ry Kidneys and U ete Repo t f f fty Two Cases S g Gy e & Ob l 93 l 836

A successful result from ureteropyeloneostomy for the relief of anuria with hydronephrosis due to complete obstruction at the ureteropel ic juncture of a solitary kidney and the successful outcome of pelv o lithotomy in ti o cases of solitary kidney led the authors to review the fifty ti o cases in wh ch ope a tion was performed on a sol tary kidney or ureter at the Mayo Clinic in the period f om November 1911 to January 1930 The purpose of the re e vas as to determine the ind cat ons r sk and results of operations on the solitary kid ey or u eter

Operation on a solitary kidney as do e t w c as often on males as on females and in 75 p r cent of the cases it was done in the third or fourth decade of l fe Multiple operati ns on the sol t ry kidney were done in six cases with a succes ful result in all In four of these they were do e for recurrent stone In forty fi e of the fifty ti o case the operation was performed for the remo al f urinary calculi and in se en for condit o s other than stone Of the forty five cases of lith asi the stone was removed from the kid ey in thirty four and from the ureter in eleven

In the e ses report d in the literature a d those treated at the Mayo Clinic the mort l ty f ope a ti n on the solitary kidney for the removal f st e was approximately 13 per ce t The operative risk

in these cases was due to delay during which there was a decrease in renal and renal infection occurred. This is evident from the cases of six patients who died following the operation. In all of these cases renal function was abnormally low and the urine contained a maximal amount of pus. Delay in operating on a solitary kidney until urinary obstruction with anuria had occurred definitely increased the mortality of operation. The risk of operation on the solitary kidney is dependent on the function of the kidney and the degree of infection. In cases of lithiasis the results are dependent somewhat on the size and number of the stones. When the stone or stones are large the possibility of a persisting urinary fistula must be considered.

Reports in the literature and the cases treated at the Mayo Clinic indicate that when renal function is satisfactory and there is no unusual infection multiple operations can be safely undertaken on a solitary kidney with the expectation of satisfactory results. Although the prognosis may seem to be almost hopeless because of anuria and impending uremia due to delay operation should be undertaken as recovery has occurred under such circumstances.

Walters and Wright have been able to find in the literature fewer than ten cases in which multiple operations were done on a solitary kidney. In all of them as in the six reported in this article recovery resulted. This fact bears out the early experimental observation of Tuftier and the clinical observations of Babcock and W. J. Mayo that not only life but also working power can be maintained with as little as half a normal kidney.

### BLADDER URETHRA AND PENIS

Hunner G. L. Neurosis of the Bladder. *J. Urol.* 1930 xiv 567

In certain cases of constant bladder discomfort pain in the lower part of the abdomen and pelvis and frequency of urination or day and night incontinence, urinalysis is negative but cystoscopy reveals urethritis and trigonitis. The inflammation may be due to gonorrhea or a focal infection or both. In cases in which it is of gonorrheal origin local applications of a 3 to 10 per cent solution of silver nitrate give excellent results. In those in which it is due to focal infection only removal of the focus of infection will give relief.

Another cause of constant bladder discomfort is elusive ulcer of the bladder. Hunner usually tells patients with such a lesion that they must be content with a method that brings reasonable comfort through continued application. The instillation of 1 oz. of a 1:500 solution of silver nitrate twice a week may be sufficient. The direct application of 10 per cent solution of silver nitrate to the ulcer may give relief for from four to six weeks. When simpler methods fail fulguration under complete narcosis may be done. If the lesion is found to be quite limited when the bladder is open it may be cauter-

ized with the electrocautery under local anesthetic. Resection has been given up by Hunner as the incidence of recurrence is 42 per cent.

A third condition which may cause bladder discomfort is stricture of the ureter. Of 100 patients with ureteral stricture 71 had bladder symptoms. In 33 cases the bladder symptoms were severe and in 38 they were mild. Many of the patients had severe bladder symptoms during attacks of renal pain due to partial or complete closure of the strictured area. Of 100 cases of ureteritis infiltration of the urethra was found in 85. Of 127 cases of elusive ulcer ureteral stricture was found in 60. In cases of this type it is Hunner's practice to treat the ureteral stricture first, then eliminate any focus of infection and finally if relief has not been obtained to treat the bladder lesion. Of more than 250 cases of partial or complete urinary incontinence Hunner found ureteral stricture to be the cause in the vast majority. In this condition he has obtained remarkable results by restoring good kidney drainage and eliminating distant foci of infection. In cases of nocturnal incontinence in children excellent results have been obtained from tonsillectomy.

Hunner recently saw for the first time a case of malignancy of the bladder developing in an ulcer area. He reports this case in detail.

ANDREW McNALLY, M.D.

Pieri G. Clinical Contributions on the Surgery of the Sympathetic Nervous System. The Treatment of Tuberculous Cystitis. (Contributi clinici alla chirurgia del sistema nervoso vegetativo). *Arch. ital. di chir.* 1930 xvii 454

The author believes that in the present state of our knowledge on the physiology of the nerve supply of the bladder it is justifiable in the treatment of chronic painful cystitis, especially tuberculous cystitis, to perform a resection of the presacral nerve as was done by him for the first time in February 1926. Besides relieving the pain this operation may exert a favorable influence also on the function of the bladder and perhaps a biological effect on the tuberculous process by reason of the vasodilation it produces.

In some cases the resection of the presacral nerve might be advantageously supplemented by bilateral section of the sympathetic cord at the level of the fifth lumbar vertebra and ramisection of the first sacral ganglia. If there are painful lesions of the posterior urethra the pudendal nerves may be blocked with alcohol.

Pieri reports three cases treated by surgery of the sympathetic nervous system.

### GENITAL ORGANS

Lehmann J. The Origin of Tuberculosis in the Male Genital Organs. (Zur Entstehung der Tuberkulose der männlichen Geschlechtsorgane). *Ir. J. path.* 1930 ccl xvii 537

The studies of a number of investigators have led to the conclusion that the anatomically intact testicle

or epididymis seminal vesicles and prostate of a man suffering from chronic pulmonary tuberculosis can excrete tubercle bacilli. They have led also to the conception of a bacillary catarrh (Simmonds). Against these conclusions are the findings of another group of investigators. At a meeting of the German Pathological Society at Vienna in 1929 Berblinger reported autopsy findings which he maintained refuted the theory of the excretion of tubercle bacilli through intact glandular epithelium and also the occurrence of a bacillary catarrh. At the suggestion of Berblinger the author systematically examined all parts of the genital organs of every corpse coming to autopsy in which a tuberculous focus was found in the lungs. To date he has examined in this way 121 bodies: 86 those of males and 35 those of females. In this article he reports the findings in the 86 male cadavers.

The cases are divided into 3 groups: (1) those of tuberculosis of the lungs and the adjacent lymph nodes in which no hematogenic metastasis could be demonstrated at autopsy; (2) those in which autopsy disclosed an older organic metastasis of hematogenic origin elsewhere than in the genital organs; and (3) those of military tuberculosis. As tubercle bacilli were not found in any of the specimens the author feels justified in concluding that the presence of bacilli in anatomically unchanged sexual organs and the development of a bacillary catarrh must be extremely rare if they occur at all.

Most investigators have assumed that the first metastasis in the genital organs develops by way of the blood stream but as none of them could make a definite statement as to the location of the primary genital focus their reports were based on assumptions. In order to determine the beginning of the tuberculous focus Sussig examined the macroscopically unchanged sexual organs of 13 males who had died of recent military tuberculosis. He found that the first changes developing by way of the blood stream are interstitial perivascular tubercles. Tubercle bacilli in the lumina of the canaliculi were found only in cases in which the rupture of an interstitial tubercle into the lumen was demonstrable. The author was able to confirm the findings of Sussig. He believes that he has demonstrated also a special predisposition of the prostate and seminal vesicles to tuberclosis.

Numerous reports have been published with regard to the primary genital localization of the tuberculous focus and whether its spread is testicular or testicular. Especially surgeons have regarded the epididymis as the first site of tuberculous infection of the male sexual tract. Only after von Baumgarten proved that tuberclosis may spread also in a direction opposite the physiological current of secretion did the testicular spread of tuberclosis of the sexual organs receive much attention. Subsequently the view that tuberclosis of the epididymis is usually of secondary genital origin became more widely accepted. In the author's 14 cases of this type the organic tuberclosis was so extensive that

the development of the primary genital focus could not be determined with certainty. However the examinations of the individual sexual organs were carried out so systematically that an origin from bacillary excretion from the testis or epididymis must be rejected.

A combination of tuberclosis of the kidneys and the male sexual organs may occur but interdependence of the two conditions is doubtful.

Among 17 cases of tuberculous changes in the sexual tract which are cited the prostate was involved in 13 and 1 of the seminal vesicles was involved in 16. In all of the cases it could be shown definitely that the original focus was in either the prostate or the seminal vesicle. In every case in which the tuberculous focus had ruptured into the lumen of the involved seminal vesicle there was dissemination to and the testis. From these findings it is evident that the prostate and seminal vesicles are frequently affected by tuberclosis. A special predisposition of these organs is therefore suggested. The author plans to carry out other investigations to determine whether the frequent involvement of the prostate and seminal vesicles by tuberclosis may be dependent upon their vascular supply or the size of the individual arteries.

Castration is merely a palliative operation which removes the secondary genital focus in the epididymis. If it were possible to diagnose tuberclosis of the seminal vesicles by careful clinical examinations the extirpation of an extrapleural section about 10 cm long of one or both vasa deferentia might render castration unnecessary. ZILLNER (Z)

Grinda J P. Calculi of the Prostate (Le calcul de la prostate). J. d. i. u. r. 93, xx.

Prostatic calculi have been known for a long time having been first described by Donatus in 1586. Although later studied by Louis Morgagni, Cistale, Velpeau and Bernard, knowledge of this variety of concretion increased slowly. In 1907 Pasteau and Guyon very completely established the pathogenesis, varieties and locations of prostatic calculi but for a long time thereafter these stones were ignored in the textbooks. Cases reported in the literature were cited as rarities and no distinction was drawn between urethral stones and prostatic calculi.

With more generalized use of the X-ray the cases reported became more numerous. To the 173 known in 1918 Kretschmer added 73 cases in 1926.

A distinction must be drawn between calculi of the prostatic urethra and those of the gland.

Most urethral calculi are formed higher in the urinary tract and in their migration are arrested by the narrow membranous urethra. They are usually single and always few. Increasingly as they may extend into the bladder assuming an hour glass form. Again they may extend into the membranous urethra or a prostatic diverticulum. The stones are composed of urates or phosphates. The symp-

toms are often little characteristic and frequently do not appear until late as the stone may be tolerated for a long time. Most frequent are dysuria with burning in the glans penis, the passage of sand and terminal hæmaturia. Genital symptoms (impotence, painful ejaculation, hæmospermia, priapism) are rare. Rectal examination is usually negative. The urine may contain pus and blood.

The diagnosis is made with a bougie à boule. The instrument encounters a hard, rough obstacle. By X-ray examination number and exact site of the calculi can be determined. The stones are always distinctly median with occasional lateral prolongations into a diverticulum. The X-ray will reveal also other stones which frequently are present in the bladder, ureters or kidneys.

The calculi of the prostate are very different. It is generally agreed that they form about the small concretions normally found in the prostatic gland and are always dependent upon chronic prostatitis.

Two types must be distinguished. Those of the most common type develop in diverticula which have followed the evacuation of one or more abscesses into the urethra. Such calculi may reach a considerable size and are always in communication with the urethra. Those of the other type, the true prostatic calculi, form in the depth of the gland and do not communicate primarily with the urethra. The chief factor in their formation is chronic in-

flammation. Their size varies from that of a buckshot to that of a cherry stone. Their number is often large, sometimes reaching 200.

Prostatic calculi are encountered under various circumstances—at autopsy, in the course of routine roentgenography and during the enucleation of an adenoma. In the last instance they are found in the compressed gland forming the capsule of the tumor.

In the diagnosis of stones which have formed in prostatic diverticula the MacCarthy cysto-urethroscope is of great aid.

The treatment of calculi of the prostatic urethra is operative. The smaller stones can be removed by the prerectal perineal route. When there is an extension into the bladder or vesical or ureteral stones are present the suprapubic route should be used.

True prostatic calculi offer a different problem. In the past most surgeons were satisfied to remove them by the perineal route, but because of the probability of recurrence suprapubic prostatectomy is now believed preferable. The enucleation is difficult because there is no line of cleavage as in an intraglandular adenoma, but it has the advantage of being radical and as done by Pasteau, Marion, Maisonneuve, Michon and others it has given excellent immediate and late results.

ALBERT F. DE GROAT, M.D.

# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

Var la M E Tle Circulation of the Bone Marrow  
and Consid rations of Certain Problems of  
Histophysiology (C c l c n d l médul b  
j s d c o e s bre lgu s p b l m s d h to  
f l g l j R d L t l m 93 538

The author states that since Neumann in 1863 published his first contribution on the cytopoietic function of the bone marrow numerous articles on the histology of the bone marrow have appeared but the majority of the investigations dealt with the cytology and ontogenesis of the blood cells rather than the structure of the bone marrow considered as an organ

In this article Varela reports on investigations in which he studied especially the topography and structure of the blood vessels in the diaphyseal marrow

In the histological study of the sinusoid vessels of the bone marrow he used the method of saturation of the vascular endothelium *in vivo* with a substance such as Chinese ink which could be easily recognized in sections Another procedure employed was the induction of passive congestion by ligation of the veins a method which is better than the injection of gelatin The combination of these two methods and Mallory staining of fixed sections gave him the best results The experimental animals were rabbits

The author concludes from his findings that the vascular network of the bone marrow is completely closed but that perhaps it occasionally opens at certain points to allow the entrance into the circulation of ne erythrocytes and platelets since these elements cannot enter by diapedesis

Maglulo A Po t Tr um tle Os ificati n f  
Muscl s (C tributo ll t d dell f a  
m ol s po t t um tch ) d p r t l 93  
I x x 3 f

Fourteen cases of ossification of muscle following trauma are reported with roentgenograms and the histopathology of a case of ossification of the brachialis anticus muscle following posterior dislocation of the elbow is discussed in detail The author believes that this form of ossification is a direct ossification While he admits that completely differentiated cells of the interfascicular connective tissue may undergo metaplasia taking on an embryonic character and then developing into bone tissue he suggests the possibility that a process of ossification may originate directly from embryonic connective tissue cells which act as osteoblasts produce bone lamellae and become differentiated into bone cells

In the lesions under discussion there is almost always an effusion of blood which contributes to the deposition of calcium thereby furnishing material for the young connective tissue in its development into bone However the author makes a distinction between the simple calcification of hematoma and true ossification

The ossifications should be excised but not until the process is definitely complete When ossification is complete a fibrous wall usually forms around the bone and isolates it from the surrounding muscle It can then be easily removed Some surgeons advise delaying the operation for a year after the beginning of the ossification but in the author's opinion the time at which the bone formation should be removed varies in different cases If the ossification is attached to bone the periosteum and a part of the cortex at the site of implantation should be removed with it Care should be taken to prevent injury of the muscle and to control bleeding in order that a secondary hematoma may not form Some surgeons advise leaving the cavity open and tamponing but in the author's opinion this is not necessary in all cases As a rule the cavity can be closed around small horsehair drains which may be removed after a few days If careful asepsis is observed there will be no recurrence

ANDREW G MORCA MD

C nett J B So Called Subacromial Bursitis  
S g Cl v l l t 93 1309

The author states that the condition usually designated as subacromial bursitis is very common and presents a distinct clinical picture but is often not recognized by the general practitioner Its presence should be considered in every case of acute or chronic pain and stiffness of the shoulder There is often a brachial neuralgia extending to the elbow or to the hand and fingers Subacromial bursitis is the most common cause of brachial neuralgia

In cases of brachial neuralgia or neuritis due to other causes the arm can be fully abducted at least passively if not actively In bursitis abduction and internal rotation of the arm are always limited or painful or both As a rule the most severe pain is located over the outer aspect of the lower part of the deltoid muscle and an area of tenderness is found at a point just beneath the anterior edge of the acromion process

In the great majority of cases presenting marked symptoms a calcareous deposit is present at the site of the localized tenderness This deposit can be shown by roentgenograms taken stereoscopically or with extreme inward and extreme outward rotation of the humerus Frequently a calcareous deposit will be found also in the other shoulder The deposit is always outside the bursa beneath its

floor. The author believes that the lesion giving rise to the symptoms is in the tendon rather than in the bursa because at operation the bursa is often found to be entirely normal.

The treatment may be either operative or non-operative. The author discusses the non-operative treatment. Opium is given for the control of the pain. The arm is at first held in moderate abduction by a large pillow placed between the arm and the side of the chest with the patient in the recumbent position. The arm is then brought into wider abduction. The abduction treatment is carried out twice a day. After two or three weeks of this treatment the acute pain usually ceases.

The author believes that spontaneous absorption of a deposit occurs only after an acute attack. While diathermy usually eases the pain temporarily he is convinced that it does not hasten absorption as he has tried it in cases of symptomless deposits without benefit.

H EARLE CONWELL M D

**Nove Jossereand and Pouzet** Flail Scapula Fixed by Bolting with the Rib (Omoplate ballante fixée par verrouillage costal) *Lyon chr* 1930 xxvii 631

The case reported was that of a girl of twenty years. At the age of thirteen years the patient noticed that the movements of abduction of the shoulders above the horizontal were weak and that on these movements the scapulae had a tendency to rise. When she was seen by the authors the scapulae had risen so that their upper angles cut the line of the trapezius and their spinal border was 11 cm from the spine. Looked at from in front the shoulders projected forward the clavicles formed a transverse protruding bar and the supraclavicular triangles were very deep. The right arm could be elevated in abduction only 60 degrees. In the movement of abduction the scapula rose the upper border moving upward and outward until it passed the line of the trapezius in a very characteristic manner and the lower angle of the scapula moved a little inward. Functional examination disclosed paralysis of the trapezius, serratus magnus and rhomboid muscles.

An incision was made along the spinal border of the scapula and the rib at the level of the spine of the scapula was denuded for a distance of 8 cm and sectioned as far out as possible. A hole was then drilled beneath the spine of the scapula and the rib passed into it like a bolt. The inner border of the scapula was fixed to the spinous processes with two chromicized catgut sutures and the patient put on a plaster bed. After two weeks a plaster corset was applied with the arm in abduction at 90 degrees. When the cast was removed two months later the scapula was fixed it did not move up or down. Two months later the patient returned and asked to have the other side operated upon. The movements of the arm were then very much freer and the scapula did move outward as before.

The authors have performed the operation described in two cases. They state that it is physiological and effective.

AUDREY G MORGAN M D

**Ostergaard C** Osteochondritis Dissecans of the Elbow (Osteochondritis dissecans cubiti) *Ugeskr f Læger* 1930 11 716

Next to the knee joint the elbow joint is the most common site of joint mice. The author reports five cases of elbow disease in young persons which was not preceded by trauma. Roentgen examination disclosed osteochondritis dissecans of the head of the humerus. Extension of the joint was decreased from 10 to 20 degrees and there was swelling of the tissues in the region of the posterior aspect of the joint lateral to the olecranon.

In deciding on the treatment of this well defined joint disturbance the surgeon must bear in mind the tendency of the condition to become cured spontaneously and the possibility that operation may not prevent the development of secondary arthritis deformans. Operation is indicated when there are foreign bodies causing symptoms but must be as simple as possible. As long as the foreign bodies do not cause symptoms operation may be delayed. Protective therapy of the joint is advisable.

HAAGEN (Z)

**Littlejohn C W B** Low Backache *J Clegé Strg Australasia* 1930 11 01

The intrinsic causes of low backache are given by the author as tuberculous, syphilitic and septic infection, neoplasms, fibrositis and arthritis due to trauma and acute and chronic trauma. The site of the lesion may be in the musculotendinous junctions or in the joints and ligaments.

The author discusses the diagnosis and treatment of sacro iliac subluxation, sacro iliac strain with subsequent arthritis, lumbosacral subluxation, anterior lumbosacral strain, lateral lumbosacral strain with arthritis and lumbosacral transverse arthritis.

He states that a large number of industrial and other cases of low backache are probably due to strains of the joints of the lower spine. The disability is prolonged by delay of proper treatment, toxic absorption and faulty posture. When appropriate treatment is given early it usually yields good results. In the majority of later cases improvement may be obtained by manipulation, postural exercises, removal of toxic foci, temporary fixation in plaster and operative fixation.

H EARLE CONWELL M D

**Zanolli R** Scoliosis and Myelitis from Compression (Scoliosi e mieliti da compressione) *Chr d org i di mor men o* 1930 x 291

In recent years a spinal syndrome associated with severe scoliosis of the dorsal spine has been reported. Only twelve authentic cases are on record. The author reviews these cases and three others in which the diagnosis was less certain and adds two cases of his own.

Zanolli's first case was that of a girl who at the age of eleven years had fallen 50 meters from a precipice fracturing the seventh dorsal vertebra. Paralysis of the sphincters persisted for about a month and a slight



gibbus appeared at the middle of the dorsal spine. After about two months the girl recovered and was well for two years but during this time the gibbus increased and an increasing scoliosis convex to the right appeared in the middle of the dorsal spine. When the girl was fourteen years of age spastic paraplegia developed. When she was first seen by the author the paraplegia had been present for a year. The findings of examination of the spinal fluid and of myelography with lipiodol the disorders of motility and sensation and the reflexes suggested compression of the cord in the eighth ninth and tenth segments. At operation the dural sac was found flattened over the angle of the gibbus. The operation resulted in flaccid paraplegia.

The second case was that of a woman of thirty years who in infancy had had rickets which resulted in progressively increasing dorsal scoliosis. When the woman as thirty years of age she began to suffer from pain and fever associated with weakness of the legs amyotrophy and abolition of the Achilles tendon reflex. Examination of the spinal fluid and myelography disclosed compression of the conus terminalis below the apex of the scoliosis. On laminectomy absence of pulsation of the dural sac in the lumbar segment was noted and the cord protruded with force when the dura was incised. No inflammation or tumor was found. After the operation the patient was able to walk without difficulty but she still had an evening rise of temperature and complained of slight intermittent pain. This is the only case in which the condition was associated with pain and fever and occurred after the eighteenth year of age.

In the diagnosis it is necessary to rule out intramedullary and extramedullary tumors and tuberculous spondylitis. Tumor is ruled out by the almost constant absence of pain and the symmetrical distribution of the spinal symptoms. Pott's disease is ruled out by the absence of signs of destruction and of mediastinal abscesses in the roentgenogram and by the extreme scoliosis and torsion.

The clinical symptoms the examination of the spinal fluid and the findings of myelography and operation show that the myelitis is caused by compression. This is proved also by the results of simple decompressive laminectomy in cases which are not too far advanced. The only treatment offering any hope of a successful outcome is decompressive laminectomy.

AUDREY G. MORGAN, M.D.

Jepson P. N. and B. A. E. A. The Manipulation of the Cervical Collar in the Spine. *A. J. S. G.* 1935, 85.

After discussing the history and etiology of arthritis of the spine the authors report their method of correcting the deformities incident to this condition.

In the authors' treatment general anesthesia is induced and the patient turned on his abdomen. Then with one assistant holding each lower extremity up from the table the surgeon manipulates the

area of the spine showing the greatest deformity which is usually the lower dorsal region. During the manipulation the sound of the breaking up of fibrous adhesions is usually heard. The pressure is continued over the deformity until the spine is slightly over corrected. A plaster-of-Paris cast extending from the armpits to the knees is then applied with the patient resting on hyperextension bars.

After from ten days to two weeks the cast is bivalved and baking and massage are begun. As the patient grows stronger he is allowed to be out of the cast for increasing intervals of time and when he is strong enough to stand a brace is applied to hold the back in the corrected position.

Four cases in which this treatment was given are reported. The first was that of a man twenty-four years of age with stiffness and fixed flexion of the spine which had come on gradually after about ten years of backache. Roentgen examination showed no bony ankylosis. After manipulation a cast was worn for two weeks and then a brace for two months. At the end of that time the patient was so much relieved that he refused to wear the brace any longer. He was able to stand erect and to walk with assurance.

The second case was that of a man twenty-three years of age with a general kyphosis which had kept him from working for three years. Manipulation was done after a course of medical treatment. Four months after the manipulation the spine was straight but its movement was limited and the use of crutches was necessitated by stiffness of the hips. However the patient considered his condition much improved by the treatment.

The third and fourth cases were those of young men with flexion deformity. In these also manipulation resulted in good extension of the spine.

Bony ankylosis is a contra-indication to manipulation. WILLIAM A. CLARK, M.D.

Leddy E. T. The Roentgen Treatment of Metastases to the Vertebrae and the Bones of the Rib Cage from Carcinoma of the Breast. *A. J. R. G.* 1935, 47.

Skeletal metastasis from carcinoma of the breast is a manifestation of the terminal generalization of the disease. Its incidence should therefore approach 100 per cent but is difficult to determine exactly from the literature.

The reason why carcinoma of the breast should metastasize so frequently to the vertebral and pelvic bones is not known. According to many observers the parts of the skeleton most frequently involved are the spinal column the pelvis the upper part of the arm the ribs and the skull (given in order of decreasing frequency of involvement). Occasionally a primary tumor has not been found clinically when symptoms of metastasis were manifest. It has been stated that the possibility of metastasis is closely related to the histological structure and spatial extent of the primary tumor that

the greater the local growth of the neoplasm the less likely it is to metastasize and that the incidence of metastasis to bone is highest in cases of scirrhous carcinoma

The mechanism by which malignant cells are carried to the vertebral and pelvic bones is still a subject of controversy. Carcinoma metastases in bone develop within the marrow. When the number of carcinoma cells is small the marrow appears normal. Having invaded the bone metastatic carcinoma may cause the formation of individual nodules or an infiltration so profuse that it may fill the whole spongiosa of a vertebra or the head of the femur. It may then grow along the vessels of the cortex to the surface and produce a knobby subperiosteal thickening or multiple diffuse regions of bone absorption.

In an attempt to evaluate the influence of roentgenotherapy on metastases of carcinoma of the breast to the vertebrae and the bones of the pelvis Liddy reviewed the cases of forty women who were treated in the Section on Roentgen Ray Therapy of the Mayo Clinic in the period from 1925 to 1928 inclusive. In twenty cases the primary lesion was in the left breast in nineteen cases in the right breast and in one case in both breasts. The age at which it developed was that usually given as the cancer age.

The characteristic symptom of involvement of bone secondary to carcinoma of the breast is pain. At first this may be mild or transitory, but later it becomes more severe and constant. Skeletal metastasis may be present for months without evidence of local recurrence or visceral metastasis. Of the forty patients whose cases are reviewed by the author two complained of mild pain, twenty of severe pain and eighteen of crippling pain.

The neuralgic pain may last for a long time without palpable deformity of the bone. Ultimately the shape of the spinal column changes. In thirty-eight of the cases reviewed roentgenograms of the thoracic organs were negative for metastasis but in two of them they revealed carcinomatous spread. It is of course evident that roentgenotherapy directed to the thorax in postoperative treatment can have no effect on malignant cells already disseminated outside the fields treated and cannot retard the growth of cells already in the spinal column and the bones of the pelvis.

Of the sixteen patients who underwent operation at the Clinic nine received postoperative roentgen treatment at the Clinic, one received such treatment at the Clinic and elsewhere and six had no postoperative treatment. Although the number of cases operated upon at the Clinic is too small to permit definite conclusions or generalizations they suggest that there is no relationship between the histological character of the tumor and the incidence or type of metastasis.

The roentgenograms in the cases reviewed showed that metastasis was most frequent in the region of the sacroiliac joint, next most frequent in the

sacrum, next most frequent in the lumbar part of the spinal column, less common in the femur and least common in the pubis.

Various methods of relieving the pain of metastatic carcinoma in bone have been reported, but as a rule the pain of malignant involvement of the vertebrae and pelvis has been treated with analgesics and sedatives. That roentgen therapy may give excellent results in cases of osseous metastasis has been known since 1907, but the literature contains few references to systematic studies of roentgen irradiation in this condition. In spite of the common opinion that metastatic carcinoma in bone is resistant to irradiation, excellent results have been obtained from moderate divided doses.

Of the forty patients whose cases are reviewed by the author, thirty-two were treated for the relief of pain and eight were given placebo treatment. Of the thirty-two treated for relief of pain, only two failed to develop analgesia. The data are inconclusive but in fourteen cases in which the pain was not relieved until from one to two weeks after the treatment the analgesia lasted for from two to four months or longer, whereas in seventeen cases in which relief was obtained more quickly it usually lasted less than two months. In the two cases in which the treatment failed, roentgenograms were positive for metastasis.

In evaluating the results of treatment it is necessary to consider both the symptomatic effect and the organic changes in the lesion. The relief of the pain of metastases in bone probably depends upon destruction of inflammatory and carcinomatous cells and a direct action on the nerves. Manifest results from irradiation of a tumor require the absorption of an effective dose by the lesion and the lapse of sufficient time after the irradiation for the effects to become manifest.

The palliative results lasting for several months which were obtained in more than 90 per cent of the cases reviewed indicate that roentgen therapy is worth while.

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS ETC

Verrall P. J. Some Amputation Problems. *Proc. Roy. Soc. Med. Lond.* 1930 xiv 183

The author states that in the case of the lower limb a tilting table prosthesis should be avoided if possible, but is necessary for a stump measuring less than 5 in. from the great trochanter. In general the best amputation of the lower limb is done just below the small trochanter. After such an amputation the psoas flexes the stump and the patient sits in the bucket of the prosthesis. For an above knee limb the amputation should be at least 4 in. above the condyles and preferably should leave a stump measuring 10 or 11 in. from the great trochanter when the normal femur measures 19 in. and a stump measuring 12 in. when the normal femur is longer. The ideal below knee stump includes 7 in.

of tibia but much shorter stumps than this can be fitted. Greater length in the leg is useless.

In the arm the ideal amputation above the elbow is done 7 in below the acromion and the ideal amputation below the elbow is done 7 in below the olecranon.

It is generally agreed that flaps should be no longer than the diameter of the limb and should contain no more muscle in their base than is necessary to insure a sufficient blood supply.

Among the most frequent amputation problems are nerve disturbances. The author agrees withilage that the major nerves should be dealt with by crushing and tying with minimal traction. However he does not approve of alcohol injection to relieve the pain in the early days after the amputation and to obtain earlier settling down of the sensitive reflex. He believes that alcohol injection produces a perineural fibrosis.

Hæmostasis should be complete. There should be no hesitation in surrounding small portions of tissue with a circular ligature when there are patches of small vessels which cannot be picked up singly. If hæmostasis is complete drainage is unnecessary. The author believes that it is better to allow space between sutures for the exit of oozing than to introduce a drainage tube.

To give rest and prevent flexion deformity below knee stumps should be splinted and above knee stumps should be steadied by a light sand bag placed above (not below) the stump.

The author usually does not change the dressings until the fourth day. He keeps the patient in bed for at least three weeks. He states that when the stump is normal massage is quite useless and may be harmful.

Emergency amputations are of three varieties—the guillotine amputation, the through joint amputation, and the amputation with flaps left open. The last is done only when the sepsis feared is comparatively mild and the length of limb that can be preserved is so short that the joint above can be permanently preserved by no other procedure. As emergency amputations are generally necessitated by sepsis it is essential in such operations to avoid opening up fresh tissue and to establish maximum drainage. These requirements are met better by the guillotine amputation than by the through joint amputation as the recesses of the synovial cavity may harbor sepsis long after it has apparently subsided. Undue retraction of the skin can be prevented by some form of extension.

The author has found spraying the raw surface with dichloramine T superior to all other methods of dressing.

Re amputation must be deferred until all sinuses have been healed for at least three months and there is no œdema of the stump but not necessarily until the wound is healed or all sequestra have separated.

The author believes that the Lisfranc amputation although almost universally condemned is a good

type of amputation provided the proper prosthesis is fitted. The proper prosthesis is one in which the loss of the long arch of the foot is replaced by an arch support.

The Chopart amputation is inadvisable in the cases of adults but a very valuable amputation in the cases of children since in the latter muscle balance for the gastrocnemius can be obtained by proper transplantation of the tibialis anticus.

The Syme operation even when performed skillfully is far less certain to give satisfactory results than a miltarsaf amputation.

Amputation stumps which appear too short can frequently be fitted with good prostheses if the excess of soft tissue is removed. In amputations of the thigh with preservation of the hip joint a thin conical stump may be quite useful. In the leg a bone length of  $1\frac{3}{4}$  in is sufficient provided the gastrocnemius is removed. When the knee cannot be preserved it will be necessary to amputate through the thigh if a modern limb is to be fitted. When the patient cannot afford a modern limb the question of excision of the fibula arises. In general the head of the fibula should be preserved as it affords an excellent anchor for a prosthesis but when the end of the fibula has rotated and the tibiofibular joint is loose removal of the whole bone is essential.

The causes of unsatisfactory stumps are numerous. Too early limb fitting may lead to a chronic peritonitis especially in cases in which sepsis was the indication for the amputation. Loss of the cutaneous nerve supply will lead to trophic disturbances and even to ulcer formation. Seborrhœa, acne, furuncles and intertrigo may occur in cases in which the skin is sensitive. An adherent scar may or may not lead to disability. When it does it should be excised. Ulceration may result from circulatory deficiency, trophic disturbances due to nerve division, general diseases such as leues and nervous diseases such as syringomyelia. The treatment must be directed against the cause. Bursæ normally form over pressure points. They cause trouble only when the prosthesis is improperly fitted. Osteomyelitis of the stump calls for surgical treatment. Spurs rarely require removal and it is doubtful whether their formation can be prevented by treatment of the bone end. Stiffness in the joints may necessitate re amputation or arthroplasty to allow the use of a prosthesis. Neuromata are especially liable to cause trouble when sepsis has been present. In most cases good limb fitting is sufficient for relief. If not local excision is indicated. Circulatory disturbances of nervous origin may be relieved temporarily but not permanently by sympathectomy and ram section. Causalgia and the phantom limb are cured only by time and occupation.

Rollo S. The Fate of Calcium Transplant (S. H. Olazo et al. Detroit: J. J. Panti et al. 1933)

The author reports experiments on young and mature rabbits in which he grafted cartilage with

and without perichondrium. The histological findings are shown in photomicrographs. Macroscopic and microscopic examinations were made at varying periods up to as long as two years after the transplantation.

The experiments showed that cartilage grafted into the subcutaneous tissue dies undergoing more or less slow degeneration followed by absorption, connective tissue substitution and calcareous infiltration. These phenomena are retarded by the presence of the perichondrium and take place considerably earlier in heterotransplants than in homo transplants.

Rollo believes that reports of the permanent taking and proliferation of cartilage grafts are based entirely on observations of cells in the peripheral zones of the grafts which are better nourished and protected by the perichondrium and therefore preserve their normal appearance longer than the other cells. He concludes however that the absorption and connective tissue substitution take place sufficiently slowly for cartilage to be employed as a material for prostheses in surgery.

AUDREY G MORGAN M D

**Tavernier L. The Robertson Lavallo Operation in Joint Tuberculosis.** (L'opérat on de Robert on Lavallo dan les tuberculoses articulaires) *L'opérat* 1930 xvi 645

The author reports fourteen cases of joint tuberculosis treated by the Robertson Lavallo operation which were followed up for not less than a year and not longer than four years. Eight of them were cases of tuberculosis of the hip and six were cases of tuberculosis of the knee.

At first Tavernier used the original Robertson Lavallo technique making oblique canals in the bones from the metaphysis to the epiphysis introducing bone grafts into these canals and uniting the ends of the bone grafts by subcutaneous grafts. When the Robertson Lavallo technique was modified by omission of the subcutaneous para articular grafts Tavernier adopted the simplified method. Ultimately he omitted the bone grafts also for he decided that as the roentgenograms showed no proliferation of bone the good effect of the operation was due not to the bone grafts but to the perforation of the bone and the results would be better if the canals were not occluded.

In all but two of the cases reviewed the immediate functional improvement was remarkable. When the casts were taken off at the end of three weeks the joints were free from pain, contracture and vicious attitudes and painless mobilization could be begun. After a few days of rest in bed the majority of the patients were able to begin to walk. Decided improvement was apparent also in the general condition, the local swelling decreased and the fistulae dried up.

Unfortunately the improvement was only temporary in the majority of the cases. In five it lasted only from one to three months and in ten it lasted

ten months. In some cases recurrence developed after the patient was believed to be cured. In others with apparent cure the roentgenograms made in the follow up examinations showed progressive bone lesions although walking was not prevented by pain or rigidity of the joint. A complete cure seems to have been obtained in only three cases and in these the lesions involved only the synovial membrane.

On the basis of these results the author concludes that the operation is not to be recommended for cases of serious bone lesions but that in its simplified form it is free from risk and worth trying in cases of early synovial involvement. Even in the latter it is not a curative operation but only an adjuvant to the classical treatment. Tavernier attributes its effects to changes in the vasomotor conditions of the local circulation brought about by the local bleeding. This would account for the transitory character of the effects.

AUDREY G MORGAN M D

**McKim L H. Conservatism in the Treatment of Infective Bone Lesions of the Fingers.** *Canadian M J* 1935 J 930 x 111 642

The author states that there seems to be a tendency especially in industrial surgery toward radical treatment of bone lesions of the fingers even to the point of amputation in some cases. He believes that this is due to economic pressure, amputation being accepted by the patient in order to escape prolonged disability.

The presence of periostitis or osteomyelitis is not always an indication for curettage. If roentgen findings were better understood and more conservative treatment was given many injured fingers might be saved.

The author reports three cases of infected bone lesions of fingers.

In the first case that of a nurse a roentgenogram made seventy two hours after the finger was pricked with a pin showed a small area of bone absorption on the distal phalanx. A small mouth incision was made and a pocket of pus evacuated. The packing was removed after five days and the patient returned to duty after two weeks.

In the second case in which there was a severe infection of the index finger a sequestrum involving the distal three fourths of the proximal phalanx was removed. Good function was obtained although the finger was reduced to a little more than half its normal length.

In the third case a roentgenogram made a month after an injury of the index finger showed sequestration of the distal end of the middle and the proximal end of the distal phalanx. As it was impossible to remove the sequestra without destroying the distal joint the finger was treated conservatively. After about six weeks healing was complete, what looked like sequestra had apparently regenerated and motion was about two thirds normal.

WILLIAM A CLARK M D

**Vignard and Bérard** Four Cases of Beginning Coxalgia Treated by Curettage and Filling Late Results After Sixteen Eleven Eleven and Three Years (S r quatre cas de coxalgie au début cur tés et plombés Résultats éloignés datant de 16 11 11 et 3 an) *Lyon chir* 193 xx 1 679

The authors report four cases of beginning coxalgia operated upon by Vignard by his method of limited curettage and filling with Moscovitz's mixture. The results may now be considered final as the operations were performed from three to sixteen years ago. The patients had had the disease for from three to eight months. All were absolutely cured within from six months to a year after the operation. There were no complications, suppurations or recurrences. All of the patients have been able to resume normal life and do heavy work. Three have a perfectly normal upright position and walk normally. One has a slight limp from insufficiency of the gluteal muscles and presents Trendelenburg's sign. Flexion varies from 25 degrees to normal. Next satisfactory are external and internal rotation. Abduction and adduction are the most limited but in two patients they reach 25 and 30 degrees. The functional condition is not directly dependent on the amplitude of the movements. One patient walks much better than another who has much greater mobility of the hip.

The good results are explained by the preservation of the musculature at the root of the hip and the readaptation of the joint surfaces.

In the roentgenograms the head of the femur has a different appearance in the different cases. In one case in which the lesions were entirely synovial it is almost normal. In a case in which the curettage was done in the lower part of the head and neck it shows enormous hypertrophy. In a third in which the curettage was done in the upper part of the neck and head the upper border of the neck seems very much shortened or even telescoped. Its appearance suggests that a large amount of tissue was removed whereas care was taken to curette only very limited lesions.

These cases demonstrate that in the hip only limited lesions chiefly those that are purely articular can be operated upon if the anatomical relations necessary for satisfactory function are to be preserved. **AUDREY G. MORGAN, M.D.**

**Vallone, D.** The Late Results of Reconstruction of the Anterior Crucial Ligament and the External Lateral Ligament of the Knee with Aponeurotic Flaps (Le traitement des lésions du ligament croisé antérieur et du ligament latéral externe par les aponeuroses) *Chir d'og et des mov* 1930 xv 308

The author reviews the various methods of reconstructing the anterior crucial and external lateral ligaments of the knee and reports a case in which he used a combination of the methods of Groves and

Putti. The patient was a twenty year old man with a rupture in the middle of the anterior crucial ligament. The upper end of the ligament was visible but nothing seemed to be left of the lower end except a few fibers. The joint capsule and external lateral ligament were also injured.

In the reconstruction of the ligaments a canal running down and inward and forward was bored in the external condyle of the femur. The inner opening was exactly at the insertion of the anterior crucial ligament. Another canal running through the joint inward downward and forward was made in the middle condyle of the tibia with its entrance at the lower insertion of the ligament and its exit below the internal tuberosity of the tibia. A pedunculated flap of fascia lata 2 cm wide and 15 cm long with its base at the external condyle of the femur was then twisted on itself several times to form a strong cord and passed through the two openings. The limb was then placed in extension and the cord fixed with silk to the periotome of the internal tuberosity of the tibia at its exit and with silk at its point of entrance. The joint capsule was closed with catgut and the external lateral ligament reconstructed by means of another pedunculated flap of fascia lata fixed with silk to the head of the fibula. The soft parts were then closed, the subcutaneous tissue drained and a plaster cast applied to the limb and pelvis. After twenty five days the cast was removed and active and passive movements were begun. The joint is now in satisfactory condition with normal movements and stability.

A roentgenogram taken four years after the operation showed no difference in density to indicate the presence of the canals but this does not prove that the canals are filled with bone as roentgenograms failed to show canals made by the author in the joint of a cadaver. Even if the transplant did not survive permanently its survival for sixty days is long enough for the formation of intra articular fibrous tissue. **AUDREY G. MORGAN, M.D.**

## FRACTURES AND DISLOCATIONS

**Ellison, E. L. and Wright, V. W. M.** Pathological Fractures *Surg Clin N Am* 1930 3335

The authors state that all so called spontaneous fractures have a definite pathological basis and that the treatment and prognosis of pathological fractures depends upon the cause. They define pathological fractures as those occurring from any other wise insignificant force acting upon a bone weakened by disease. In the majority of cases the most common causes of bone fracture were (in order of decreasing frequency) bone tumors, inflammatory changes and nutritional disturbances.

The incidence of pathological fractures is highest in the long bones. Mentioned in order of decreasing frequency of involvement the long bones most often fractured are the femur, the humerus, the tibia and the radius. Metastases from organic malignant disease may occur in long or short bones.

As flat bones are seldom subjected to trauma pathological fractures of flat bones are rare

Pathological fractures occur most often in the extremes of life. Nutritional defects of bone such as those resulting from rickets and scurvy occur in youth. Sarcoma is more frequent in youth and early adult life than in old age and carcinoma neurotrophic and atrophic changes are most common in late middle and advanced life

In fractures due to benign tumors union is the rule. In cases of bone cysts fracture usually results in cure of the cystic condition. Hawley states that union is the rule in fractures due to carcinoma but according to Bloodgood union of fractures due to metastatic carcinoma is rare. Pancoast reported that in 40 per cent of his cases of pathological fracture due to carcinoma union occurred with or without treatment by irradiation. Bloodgood states that in cases of fracture due to sarcoma union is very rare. Doubtful union occurred in only two of twenty one cases reported by him.

In fractures due to acute and subacute inflammatory conditions union is the general end result if the infection is given early and adequate surgical treatment. In neglected cases especially in adults non union may occur. In fractures due to chronic inflammatory conditions union with excessive callus formation usually results.

In fractures occurring in general disease union is delayed or fails to occur depending upon the course of the general disease. In rickets osteomalacia and scurvy proper treatment results in union. Fractures due to osteomalacia frequently heal with excessive provisional callus formation.

H EARLE CORWELL M D

Juvara E. Osteosynthesis (Contribution à l'ostéosynthese) *Bull et mémoires Soc de chir de Pa* 930  
xvi 602

Juvara performs osteosynthesis in the treatment of (1) incompletely reduced fresh fractures (2) nearly all open fractures (3) fractures with late complications and (4) fractures with non union or malunion. He emphasizes that the material used must be easily, quickly and exactly put into place and so strongly fixed in position that except in rare cases the use of an external prosthesis will be unnecessary. It must have the least possible contact with the bone and must be easily removed after it has served its purpose. Juvara does not approve of procedures in which the bone is covered to a considerable extent by metallic parts. He believes that osteosynthesis should be done as soon as possible after the accident.

Seven fractures treated successfully by osteosynthesis are reported. These included (1) an oblique subtrochanteric fracture of the femur which had united with marked shortening of the limb and great angular deformity due to adduction and rotation of the lower fragment (2) a subtrochanteric V shaped fracture with three fragments (3) a fracture of the upper third of the leg in which

the tibial fracture was oblique and pseudarthrosis resulted (5) a fracture of the middle third of the leg in which the tibial fracture was oblique and there was non union with great angular deformity after three months (5) a double fracture of the humerus—an oblique fracture in the upper third and a transverse fracture of the surgical neck (6) a low supracondylar fracture of the femur with great displacement and (7) a comminuted supracondylar fracture of the femur. PACE

Soli D. Traumatic Lesions of Certain Bones of the Wrist (Lesioni traumatiche di alcune ossa del polso) *Chir d o g n i d i m o m e d i t o* 193 v 3 6

The author reports three cases of traumatic lesions of bones of the wrist. The first was a case of fracture of the scaphoid bone caused by a fall from an overturning wagon. The patient fell on his right hand which was hyperextended and turned toward the radial side. About ten minutes after the injury the wrist became painful and swollen. On examination palpation elicited pain at the site of the scaphoid. The other bones were painless. Passive adduction of the radius was very painful and flexion and extension of the hand were limited and slightly painful. The diagnosis of fracture of the scaphoid was confirmed by roentgen examination which showed a linear fracture without displacement of the fragments. Immobilization in a plaster cast for eight days was followed by hot air baths, massage and gradual mobilization.

Soli states that it is difficult to determine the prognosis of fractures of the scaphoid as sometimes especially in boxers these fractures are not recognized sometimes they heal with limitation of function from pain or rigidity and sometimes they result in ankylosis.

In the second case reported there was a luxation of the semilunar bone with a comminuted fracture of the pyramidal bone. The patient was a man thirty-eight years of age who fell from a height of 4 meters on his right side. He did not know the position in which his hand struck the ground but stated that the blow caused intense pain. After the injury the hand was turned toward the ulnar side and slightly flexed and the wrist showed a slight diffuse edema but no ecchymoses. Pronation and supination were preserved. The fingers were slightly flexed. Extension was almost impossible and other active movements were very limited. The patient complained of spontaneous pain in the wrist joint which irradiated to the fingers. It was impossible to close his hand. All passive movements were limited and painful. The anatomical snuff box was free and the metacarpals and bones of the second row were not painful. Below the flexors and between two lines traversing the wrist on a prolongation of the third metacarpal a slight elevation was noted. A diagnosis of anterior dislocation of the semilunar bone was made and confirmed by roentgen examination. Roentgen examination showed also a comminuted fracture of the pyramidal bone. The dislocated bone

and the fragments were removed and immobilization of the wrist for eight days was followed by gradual mobilization massage and electrical treatment.

The third case reported by the author was one of fracture of the trapezium in a man twenty three years of age who was struck by a truck while he was riding a motorcycle. The right wrist was slightly edematous and presented an ecchymosis on the external half of its volar surface. There was no special abnormal position of the hand and no deformity or crepitation was noted. Passive movements of the joint were normal. There were no subjective symptoms because the patient remained in coma until his death five days after the accident.

The author states that traumatic lesions of the trapezium are very rare. He believes that in the case he reports is the truck struck the hyperextended hand and that the escape of the scaphoid from injury is explained by the relative elasticity of this bone due to the patient's youth.

STUDLEY G. MORGAN, M.D.

Jákl J. Contributions on Injuries of the Spine  
(U g ) 1 1 f 1 1 p C 1 93 x 630

The cause of the increase in the reports of injuries of the spine cannot be determined with certainty, but it is probable that refinements in roentgen technique have allowed the recognition of fractures which formerly were diagnosed incorrectly.

The severity of a spinal injury is not always proportionate to the severity of the mechanical force causing the injury. Serious mechanical insults often cause no lesions, whereas slight mechanical insults may produce lesions of great severity. To explain this fact the author cites the work of Moskalenko on the structure of the spongiosa and that of Goecke on the resistance of young and osteoporotic spongiosa. As vertebral fractures may result from muscular contraction alone, experiments on cadavers have only a slight value. With regard to the relation of the morphological peculiarities of the spinal column to the disproportion between the severity of mechanical insults and the severity and nature of resulting spinal injuries the author cites the views of Schanz on the accessory weight bearing parts of the spine and the work of Schmorl on the anatomy of the vertebral bodies and intervertebral disks.

Jákl reviews forty seven cases of injury of the spine. The old theory that compression fractures do not occur before the sixteenth year of age is not correct as the cases reviewed included six fractures in children under that age. The author classifies the fractures according to the classification of Hoehner which is based on localization. In one of his cases there was a Tennen fracture due to lifting. This occurred in the tenth thoracic vertebra of a man fifty years of age. The author states that in dislocation compression fractures muscular tension always plays an important part as well as weight bearing. In two of the cases reviewed there was luxation of a

cervical vertebra without injury of the spinal cord. The author discusses fractures of the transverse processes and arches of the vertebrae.

The treatment is discussed on the basis of the literature. The author's patients with mild injuries were treated in the dorsal posture and those with severe injuries were placed in a plaster cast and in the ventral posture. Patients with simple compression fractures were treated in a plaster cast for forty days in the hospital and then for four weeks more at home. In the cases of those with less severe injuries rest in bed for four weeks seemed sufficient. After six months light work was permitted. The wearing of a corset was never advised.

Two luxation compression fractures were treated surgically. In the first case in which the twelfth dorsal vertebra was involved, only marked edema of the dura was found, but the paralysis persisted and the patient died from sepsis due to decubitus. In the second case that of a fifteen year old boy with a fracture of the fifth lumbar vertebra, adhesion of the nerve stems to the dura was discovered after three months. The adhesions were released but there was no change in the neurological findings.

The follow up examination showed that patients with insurance had more severe symptoms than those without insurance and that those without insurance resumed their occupations earlier.

HELSINKI (2)

Hou Moles Maisonné and Salin: Separations and Luxations of the Pelvis (Dislocation of the Pelvis)  
lu at a da ba an) Rev d ch P 193 x 1

This article does not include displacements of the pelvis following delivery or those following operations on the symphysis pubis or in its neighborhood. Displacements of the pelvis may be divided into up and inward and outward luxations of the os coxae. They may be bisymphyseal, the result of separation of the symphysis pubis and one sacroiliac joint, or trisymphyseal, the result of separation of the symphysis pubis and both sacroiliac joints.

In a review of the literature the authors collected thirty five cases of luxation of the os coxae upward and inward and fifty nine cases of luxation of the os coxae outward. Of the latter fifty one were bisymphyseal and eight were trisymphyseal. Ten of the bisymphyseal luxations were of the type described as the pubic separation of horsemen.

Dislocation of the pelvis is the result of severe trauma. It begins at the symphysis pubis and is usually accompanied by a sacroiliac lesion. Lesions of both sacroiliac joints are rare. Separation of the pubic symphysis is most common in men past the fourth decade who are muscular and rather heavy.

Lesions of the pelvic girdle may be divided into ligament lesions and bone displacements and the latter into separations and luxations. Associated injuries of the urinary tract are frequent. They vary in importance according to the degree of displacement of the pelvic bones. Rupture of the urethra

is most common in cases in which there is a marked ascent of the os coxæ i.e. true luxations of the pelvis. The cause is traction on the perineum. Vesical lesions occur most frequently in cases of separation of the symphysis pubis.

Luxations of the pelvis are accompanied by severe general phenomena. These include pains in the inguinal and sacro iliac regions which are often propagated to the injured lower limb functional impotence of the legs hyperæsthesia and paralysis of the wounded side from stretching of the nerves of the sacro iliac joint. The patient is unable to walk or stand up. Examination reveals ecchymoses and beneath these a voluminous hæmatoma covering the pubic region encircling the scrotum distending the perineum surrounding the anus and extending toward the lumbar region and the roots of the thighs. The hæmatoma makes palpation of the skeleton very difficult. Nearly always the separation of the pubic symphysis has not been recognized. On palpation pain which is less severe than that associated with fracture is noted in the pubic symphysis and in one or both sacro iliac articulations. In cases in which the effusion has been absorbed separation or unevenness of the symphysis may be noted. The Verneuil sign pain on transverse pressure on the pelvis or the Larrey sign pain on excentric pressure may be present as in fracture.

In traumatic separations of the symphysis pubis without vertical displacement the lower limbs are in extension and generally rotated outward and there is no shortening. The increase in the circumference of the pelvis may be ascertained by tracing

from each side the spinotrochanteric lines of Schmoeccker. These lines will be found to meet at a higher point than normal. When there is luxation of the os coxæ the rise of the pelvis is manifested by apparent shortening of the limb on the injured side. The authors describe methods of measuring. The chief aid in the diagnosis is roentgenography.

In the ninety four cases of luxation of the pelvis reviewed there were twenty nine deaths a mortality of 32.5 per cent. The deaths were due chiefly to visceral complications. The prognosis is relatively favorable from the point of view of function but in some cases there may be persistent pains in the crural and sciatic nerves visceral sequelæ and deformities of the pelvic girdle. In non reduced or partially reduced luxations there is an apparent shortening of the limb which may amount to 6 cm. Recovery requires several months and the incidence of permanent disability may reach 70 per cent.

Transverse separations or luxations of the pelvis sometimes become reduced spontaneously. In transverse separation with lesions of one or both sacro iliac joints sudden or progressively increased pressure on the lateral surfaces of the pelvis may correct the symphyseal displacement. The pelvis and lower limbs must then be immobilized. Reduction of luxations of the iliac bone is more difficult. In old luxations the treatment can be only symptomatic.

The authors discuss also the treatment of complications of pelvic separations and luxations including wounds of the bladder and posterior urethra.

PAGE



# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Tidy, H. L. Symptom and Pathogenesis of the Hemorrhagic Diathesis. *Br J Med* 1931; 1: 3

The author states that the essential cause of the hemorrhages in the hemorrhagic diathesis is an increase in the permeability of the capillary endothelium. The platelets attempt to plug the weak spots and are thus removed from the circulation. An increased demand for platelets consequently falls on the bone marrow and the latter may or may not respond. The normal action of the spleen in destroying defective constituents of the blood increases and there is a tendency toward spontaneous splenic enlargement.

The symptoms of the hemorrhagic diathesis may be divided into three groups: (1) hemorrhage, (2) anemia due to the loss of blood and the lysis of the blood-forming tissues and (3) the results of the escape of plasma into the tissues, namely, edema, abdominal colic and pruritus and the joint pains.

Tidy believes that the varieties of the hemorrhagic diathesis may be classified into three groups: (1) those characterized by pure primary hemorrhage including all grades from purpura simplex to purpura hemorrhagica, the principal symptoms of which are attributable to anemia; (2) those characterized by pure primary urticaria, the principal symptoms of which are abdominal colic and joint pain; and (3) those with combined hemorrhage and urticaria including Henoch's purpura and purpura rheumatica, the principal symptoms of which are due mainly to the urticarial factor, though this does not exclude any doubt on the blood-forming organs necessitate the removal of debris from the tissues or cause enlargement of the spleen.

There is no sharp dividing line between the hemorrhagic diathesis and splenic anemia but Banti's disease and hemophilia are separate entities. The author believes that splenectomy is a therapeutic measure of great value in selected cases of the hemorrhagic diathesis but is contra-indicated unless the platelets are diminished in number.

LOUIS P. GAMBLE, M.D.

Wright, A. D. The Treatment of Varicose Ulcers. *Br J Med* 1931; 1: 97

In two years the author has cured more than 300 cases of varicose ulcer. His method is quite simple. The highest visible varicose veins are injected with 5 per cent sodium morrhuate and then, regardless of the appearance of the ulcer, the leg is firmly encased from foot to knee in a 3 in. spiral bandage of elastoplast adhesive. To prevent creeping of the bandage longitudinal splints of the same material

9 in. long are laid on the sides of the leg above the ankle and the spiral is applied over them. The patient is instructed not to restrict his physical activity. A discharge seeping through the bandage is washed off with soap and cold water.

The time for the application of the second spiral bandage depends upon the reduction of the edema. As the edema subsides more varicose veins may be seen. These are injected in the usual fashion. When the ulcers are large the elastoplast bandage is changed twice a week.

Under this treatment healing is usually rapid. If the ulcer is very large skin grafting is performed. In order to keep the treatment ambulatory the graft are buried beneath the granulations as small inserts laced in at skin threads or injected. The ulcer is then covered in exactly the same manner as before.

After healing is complete the support is continued for three months by means of Unna bandages and the patient is instructed to report for examination every three months. *ANNALS OF SURGERY* 1931; 92: 110

Sliff, T. The Interruption of the Pain in Embolism of the Arteries Supplying Large Areas of the Extremities (Zur Wirkung des Schmerzmittel). *Archiv f. Klin. u. Exp. Med.* 1931; 117: 197

The symptoms of embolism of an artery of an extremity (pain, disturbances of sensation and motion, pallor of the skin and disappearance of the pulse) do not definitely indicate the site of the embolus but if the nature of the pain and its site are studied carefully, more accurate diagnostic information can be obtained.

In a case of embolism of the artery of the arm the author observed a sudden displacement of the point of pain to the elbow. At this moment the embolus apparently moved to the ulnar artery. The pain occurring at the time of the occlusion of the artery is due to a vascular spasm caused by the irritation from the foreign body, the embolus occluding the artery is not itself the direct cause. In the case reported the pains were relieved after an operation attempted under local anesthesia in spite of the fact that the embolus was not removed. The severe pains associated with gangrene which according to Ehrlich's investigations appear even before the gangrene and have their cause in a tumescence of the muscular tissue are of a different nature. The author therefore recommends that in cases in which embolism is suspected more attention be paid to the nature, time of onset, duration and site of the pain.

In the discussion of this report GULEKE stated that some patients are able to feel the separation of

a thrombus in a vein and the different stages of its migration

E. WILLIAMS (Z)

### BLOOD TRANSFUSION

Isaacs R. Blood Changes in the Leukæmias and the Lymphomata and Their Bearing on Roentgen Therapy *1m J Roentgenol* 1930  
xxiv 648

This article is based on 878 cases of lymphatic and myelogenous leukæmia and lymphoblastoma which were treated at the Huntington Memorial Hospital in Boston and at the University Hospital and Simpson Memorial Institute at Ann Arbor Michigan

The findings show that the stimulating action of the roentgen rays causes the younger forms of leucocytes such as the primitive myeloblast to divide and form the same types of cells. Leucocytes as advanced as the myelocytes are stimulated to normal growth to form polymorphonuclear leucocytes. The action of Janus green and neutral red on young old and roentgen irradiated cells demonstrated that cells mature rapidly when exposed to irradiation. Only older leucocytes are excreted by mucous membrane. Roentgen therapy causes a marked increase in the number of polymorphonuclear leucocytes thus excreted. Myeloblasts may fill the bone marrow and crowd out other cells after roentgen therapy. When most of the cells in the bone marrow are in this stage they cannot be stimulated to mature hence they are said to be refractory to the roentgen ray. Continued treatment under such circumstances reduces the number of germinating cells and causes aplastic anæmia. The maturation of the polymorphonuclear leucocytes progresses much more rapidly after roentgen therapy. That the maturation and development of erythrocytes are also hastened is shown by the improvement following roentgen irradiation in cancer and the anæmias.

The early forms of lymphocytes are stimulated to reproduce in a manner similar to the leucocytes. Roentgen irradiation is often contra indicated in chronic lymphatic leukæmia because the lymphatic cells are in an early stage. In this condition roentgen irradiation is best given when the lymphatic cells are of medium or small size at which stage they will tend to mature more rapidly.

While roentgen irradiation may result in symptomatic improvement Minot Bäckman and Isaacs have found that it does not prolong life except in individual cases in which an immediate and mechanical cause of death is removed.

In anæmia irradiation will not be beneficial when there is a preponderance of myeloblasts or lymphoblasts. The older red blood cells and blood platelets will not be increased in numbers while the bone marrow is clogged with young cells.

In addition to the blood findings the general condition must be considered in determining the treatment. A high basal metabolic rate nervousness

sweating a fast pulse and loss of weight are definite indications to irradiation even when the leucocyte count is not markedly increased. Irradiation is indicated when the cell count is low and the rate of cell excretion from the mucous membrane is high as these findings are evidence of an active cellular bone marrow. It is very important to gauge the latent period or the time between the exposures to irradiation and the time at which therapeutic results are noted in order to make sure that the patient is receiving the proper stimulation. The author advises limiting the number of exposures as much as possible. The larger the effective dose given at one time the quicker will be the response on the part of the blood cells.

CLARENCE V. BATEMAN M.D.

Soderlund G. Blood Transfusion in Surgery  
(Ueber Bluttransfusion in der Chirurgie) *Hygiea*  
1930 xcii 513

Soderlund states that the experiences of the World War greatly increased our knowledge especially with regard to wound antiseptics and the nature of shock following injuries and operations. The problem of shock given little attention in the German literature was investigated by an English Shock Committee. As a result of the findings of that Committee the value of blood transfusion in the treatment of shock became recognized.

The author takes up in great detail first the history of the development of blood transfusion. This part may be passed over as it is well known and the work of Beck, Doan, Pemberton and Stapelmohr are mentioned as sources.

In the author's opinion the best apparatus for direct transfusion is that of Oehlecker and Beck. Oehlecker's method is the procedure usually employed in the Sabbatsberg Hospital and by Stapelmohr. For indirect transfusion the apparatus of Percy is best. In Sweden the large Percy tube with a capacity of from 700 to 800 c cm has been generally replaced by the Jeanbreen tube with a capacity of about 450 c cm. The indirect method is used routinely at the Maria Hospital and the Serafinerlazarett.

If one adheres to the view that only pure not previously treated blood should be transfused only the methods of Oehlecker and Percy come up for consideration. The apparatus and the method of Beck have not been tested for a sufficiently long time. The author is unable to judge the Oehlecker method as he uses only the technique of Percy.

Soderlund then discusses the dangers of blood transfusion. These may be avoided by the proper selection of donors according to blood groups. Attention is called to Lindau's work on reactions after blood transfusion.

Transfusion is indicated in acute loss of blood exsanguination postoperative and posttraumatic shock, acute or chronic hæmorrhages due to definite local disease processes (gastric and duodenal ulcer, pulmonary tuberculosis, hæmophilia, cholæmia, sep-

si pernicious anemia) and as pre operative preparation of patients who without it would be unable to withstand operative intervention. In discussing the effect of blood transfusion the author mentions especially the great work of Laque and Lieber.

According to the findings of the Shock Committee shock is due to histamines albuminous toxins which paralyze the capillaries. As a result of the stasis in the paralyzed capillaries the quantity of circulating blood is diminished and the circulatory system and vasomotor centers are disturbed. This condition must not be confused with cardiac collapse. Blood transfusion apparently acts not only by replacing the blood which in a certain sense has been lost but by stimulating the hematopoietic organs as a hemostyptic. It is superior in every respect to the injection of gelatin or hypotonic sodium chloride solutions. The mechanism of the hemostatic effect of transfusion in such conditions as hemophilia and postoperative hemorrhage is unknown. Even surgeons who heretofore regarded sodium chloride or glucose injections as sufficient have come to recognize the necessity and advantages of blood transfusion. In this connection the author cites von Eiselsberg as saying recently that blood transfusion is now indispensable in a surgical department. GERLICH (7)

### RETICULO ENDOTHELIAL SYSTEM

Magliulo A. The Influence of the Condition of the Reticulo Endothelial System on the Taking of Homoplastic Ovarian Grafts. *Studia Anatomica et Chirurgica* 1933 3:333

The author used young rabbits of the same age and the same race for his experiments. They were castrated and ovaries were grafted into them. The ovaries for the grafts were obtained from animals from twenty five to thirty five days old because young tissue takes more readily. The grafting was done into the liver because this organ contains many reticulo endothelial cells. The stain used to produce relative block of the reticulo endothelial system was a 10 per cent solution of dextran of iron which is well borne by rabbits and is less toxic than trypan blue. This as injected intravenously in increasing amounts either before or after the grafting.

The grafts were found to take and survive for a varying period of time but not permanently. However they survived longer than when the reticulo endothelial system had not been blocked as blocking inhibits the reaction against foreign tissue which this system brings about. ADAMS G. MORGAN M.D.

### LYMPH GLANDS AND LYMPHATIC VESSELS

Cossan E. T. Lymph Exudate and Fibrous Tissue. *Ann Surg* 1930 90: 9

In surgery fibrous tissue is a sign of recovery or the termination of irritation. It is a mighty factor in

the restoration of health but just as frequently it is an insurmountable opponent to the restoration of function. Without it surgery would be impossible yet because of it surgery is frequently impossible. The progenitor of fibrous tissue is lymph exudate. If the surgeon appreciates the qualities of lymph exudate and fibrous tissue he will understand how to deal with the deformities which have not or cannot be controlled.

Lymph exudate is the body's first reaction to irritation. In irritation due to infection for example the exudate starves the bacteria impedes their action or destroys them and prevents the toxins from entering the circulation. The common practice of treating infections is based on utter disregard for fibrin leucocytes and serum. The attempt is made to destroy the bacteria by antiseptics frequent change of dressings or irrigation. These procedures however destroy also the defense mechanism. Infected wounds antiseptics are not only useless but harmful. The surgeon can hope to add to the defense only by physiological treatment consisting of measures which will stimulate the exudate such as incision and drainage. Incision relieves pressure and thereby causes a transudation of serum an emigration of leucocytes and a backwash from the lymphatics. The drain though it is inserted as a means of egress for the pus stimulates additional defense. Therefore a drain should not be disturbed until its removal is absolutely necessary. Frequent removal of drains is just as destructive to lymph exudate as the use of antiseptics.

The introduction of a drain to prevent dissemination of leakage is good surgery provided the surgeon realizes that the drain may stimulate leakage. A drain introduced near the site of an anastomosis will produce additional lymph exudation and the resulting soggy mass at the stoma may cause the sutures to pull out. However clinical experience shows that a drain within the abdomen for forty eight hours the period for which a prophylactic drain is used never causes symptoms.

Crossan discusses the application of physiological treatment to osteomyelitis citing the good results obtained in this condition during the war from the use of hipp paste and infrequent dressings.

He states that the lymph exudate of repair has the same qualities as the lymph exudate of defense. The fibrin forms the scaffold for the invading fibroblasts and the sprouting blood vessels. Crossan discusses the formation and character of scars. He believes that contractures of scar tissue are determined by muscle and tendon push on the skin. If this theory is correct incisions in the neck elbow hand axilla and popliteal space should be made transversely to prevent band contractures and in cases of longitudinal wounds in the surface flexures motion should be prohibited for four or five weeks until the fibroblasts have become settled in a line parallel with the scar.

With regard to suturing Crossan reminds us that every stitch more than is required is a double irritant.

Irritation is caused by the action of the suture as a foreign body and also by its introduction. In some cases however extra irritation may be of advantage as in herniorrhaphies in which many sutures closely placed will secure a firmer bond between the muscles and Poupart's ligament than a few sutures. Close suturing of the abdominal wall is an added protection against prolapse of the intestines or stretching of the scar. The use of many sutures in gastro enterostomy to prevent leakage may be unnecessary. The purpose of sutures is to hold firmly the lymph exudate scaffold.

Every discussion of lymph exudate must include fibrous tissue but a discussion of fibrous tissue does not necessarily require a consideration of lymph exudate. Fibrous tissue springs also from blood clot a formation in which lymph exudate is a secondary factor. Elimination of blood clot is a method by which fibrous tissue may be controlled.

Fibrous tissue and lymph exudate are not related factors when deformities come to the surgeon fully

developed. Control is then no longer possible and the problem can be solved only by stretching or collapsing the wall. If an attempt is made to break up the adhesions forcibly another process of granulation and organization ensues. The treatment of fibrous ankylosis is a good example of what stretching can do.

Persistent stretching of adhesions may be a cause of disability and pain.

Stretching is an important factor in the surgery of fibrous tissue. Sometimes the surgeon uses it occasionally he abolishes it and frequently in abdominal surgery he guards against it by the use of a belt.

The most efficient treatment of fibrous tissue is that which has for its object the excision of the scar or the collapse of the sinus wall. Such treatment is used on the sinuses of osteomyelitis in thoracoplasty for chronic empyema and in the cure of anal fistula which is a sinus encircled by fibrous tissue.

In conclusion the author discusses briefly keloid peritoneal adhesions and non union of fractures.

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Dziembowski S The Value of Certain Methods  
of General Treatment of Inoperable Neoplasms  
(C d t o u r l a l e u r d e q e l q u e m é t h i s  
d t a i m n t g é n é r a l d n é o p l m s i o p é b i s )  
I l l i é m S d e l g d e P 193  
6 6

There are 250 chemical remedies for cancer. The author first reports his results from some of the best known chemical methods of treating malignancy and then his results from the use of blood treated with the X rays. He obtained no effect from a combination of irradiation and diathermy. Intravenous injections of glucose had no important influence on the results of irradiation but improved the general condition during the treatment and suppressed lesions and disturbances provoked by irradiation. Arsenic especially when given by injection often had a favorable influence on the general condition. In certain cases of tumors of the bones, lymphatics and skin and especially cases of esophageal cancer it caused striking improvement in the local lesion. The use of iodoiodine (iodine and cedrium) gave no result. Protein therapy was often followed by remarkable improvement in both the general condition and the local lesion. In some cases it seemed to arrest the progress and generalization of the neoplasm but in others its effect was just the opposite. The results of borholin injections with irradiation were encouraging. Intravenous injections of isamium caeruleum prior to irradiation improved the general condition caused a remarkable decrease in the pain and arrested the growth and generalization of the neoplasm.

Dziembowski has used transfusion of blood treated with the X rays in 12 cases in the last two years. The technique is as follows:

When the patient's general condition permits, 50 cc. of his blood are allowed to flow from the ulnar vein or the radial artery into a glass containing sodium citrate. This blood is then subjected to 50 or 75 per cent of a skin erythema dose of roentgen irradiation at a distance of 25 cm. and with the use of an aluminum filter of 0.3 mm. It is then re-injected. If the patient cannot withstand the loss of so much blood, the blood is obtained from a donor. When autogenous blood is used, a third of it is injected into the ulnar vein, a portion is injected around the tumor if possible and the remainder is injected intramuscularly. When the blood is obtained from another person it is injected only around the tumor and intramuscularly. When peritoneal injection is impossible (as in cases of intra-abdominal tumor) it is replaced by an intramuscular or deep

subcutaneous injection in the field where irradiation would be applied. Immediately after the re-injection the first irradiation (a strong dose) is administered to the focus of the neoplasm.

This treatment is followed by a reaction. There is nearly always a leucocytosis which is more lasting than that which occurs after simple X-ray irradiation. There is also a greater increase of nitrogen and bilirubin in the blood serum. The number of thrombocytes and the speed of coagulation of the blood are increased. In cases of secondary anemia a favorable influence on the number and quality of the erythrocytes is noted.

The results obtained by this treatment in 60 advanced cases were very much better than those obtained by irradiation alone. Several of the cases are reported. Excellent results were obtained also in many cases of surgical tuberculosis. Page

## ANTISEPTIC SURGERY TREATMENT OF WOUNDS AND INFECTIONS

Guillain G and De Sève S Considérations  
générales Cliniques sur la dth Tétanique  
d'un Cas de Tétanie Which Was Cured  
(C d t o u r l a l e u r d e q e l q u e m é t h i s  
p u t i q e d n s d t é t g e g u ) b l l  
m é m S m é t d h p d e P 93 1 3

Serotherapy often fails in severe tetanus when the bulbar symptoms appear early, muscular spasms are continuous, insomnia is complete and dehydration is progressive. To the serotherapy have been added such hypnotics as chloral hydrate or somnifene to relieve the insomnia which is an important cause of exhaustion to diminish the contractures and perhaps reduce the sensitivity of the bulbous centers to the toxin. The treatment of tetanus is extremely difficult. Success is dependent largely on the attentiveness of the nurse and intern.

The authors cite the case of a patient who recovered from a severe attack of tetanus which would certainly have proved fatal if he had not received constant attention. The infection was due to a penetrating wound of the thenar eminence from a dirty nail. The day after the injury stiffness was noted in the jaw muscles and within twenty-four hours a true trismus developed. A physician who was called immediately began injections of tetanus antitoxin and continued them daily for five days. In spite of this the contractures became generalized and rendered sleep and nourishment impossible. When the patient entered the hospital his condition was grave. The muscles were rigid and at the least disturbance general ed spasms occurred.

In the treatment given by the authors the trismus produced by the nail was immediately excised and

every day from 150 to 250 c cm of tetanus anti toxin were injected subcutaneously. An intravenous injection of somnifene was given night and morning. This was made very slowly and stopped at the end of about five minutes when the patient fell asleep that is to say when he no longer responded to questions. Once daily the patient was anesthetized with chloroform for a period of about an hour when serum was administered intraspinally but this was interrupted as soon as examination showed the approach of a serous meningitis. During the night morphine was given once or twice. To prevent dehydration a rectal drip of 4 per cent glucose in normal saline solution was given and 2 liters of normal saline solution were administered subcutaneously every day.

For four days the condition remained unchanged. It then became possible to give a small amount of liquid by mouth during the short period of somnolence following the omnifene injections. The amount of fluid tolerated became progressively greater and the pulse and temperature slowly declined over a period of five days. Then a marked icterus with petechial hemorrhages and a fall in the urinary output developed. The toxic hypnotics and anæsthetic were discontinued and for four days the patient remained in semicomatose. Rapid improvement then followed with disappearance of the icterus, polyuria and a diminution of the contractures. The doses of antitoxin were gradually reduced and thirty one days after the beginning of the illness the patient was discharged. Hyperactivity of the tendon reflexes persisted for some time.

The authors emphasize particularly the necessity of treating the wound by excision. Extremely large doses of serum must be given. In the case reported the patient received 1680 c cm. Intraspinous therapy is no doubt of value but is not without danger. The use of general anæsthetics is of great benefit but chloroform is associated with some danger as it is toxic to the liver. Somnifene is probably dangerous only in excessive doses.

After recovery contractures of the extremities are common. Ankylosis of the jaw may result. These complications can probably always be relieved by prompt treatment with massage and passive mobilization.

ALBERT F. DE GROOT, M.D.

Konrich. The Bacterial Content of Commercial Bandaging Materials and the Necessity for Uniform Sterilization (Ueber den Keimgehalt käuflicher Verbandstoffe und die Notwendigkeit einheitlicher Verbandstoffsterilisation). *Arch. Klin. Chir.* 1930 clx 541.

Konrich examined 183 packages of gauze and 221 packages of cotton bandage material which were marketed as sterile and had been purchased in 151 apothecary shops and 3 drug stores in greater Berlin. Most of the packages had 2 wrappers. Konrich was able to show that only the inner wrapping was sterilized with the contents as the outer one, usually a pasteboard carton, could not withstand a

sterilizing process. The result of the examination was disturbing as 52 per cent of the samples were not sterile. By sterile is meant completely free from bacteria including latent forms.

The latest German regulations for sterilization require exposure to either compressed steam at 115 degrees for fifteen minutes or to flowing steam at 100 degrees for a half hour. These rules must be changed for according to Konrich's studies the 2 methods of sterilization are not comparable. Highly resistant spores are usually not killed in flowing steam at 100 degrees and when exposed to compressed steam at 115 degrees for a period of fifteen minutes they are just on the borderline of destruction. Furthermore the interval of fifteen minutes should be reckoned from the time at which the prescribed temperature is attained throughout the contents. The interval required for the desired degree of heat to be obtained throughout the package varies greatly with different apparatuses and sometimes cannot be determined with certainty. Also to be considered is the form in which the material is drummed. The old Schimmelbusch method is poor because the steam flows in only from the side. The new Lautenschlaeger drums are good as the steam flows through from above downward.

While with the use of dressings sterilized by present day methods wound disturbances occur only occasionally and even then are not definitely proved to be due to the dressings, many of the organisms found being merely saprophytes, Konrich observes that in weakened patients we do not know to what extent the symbiosis of spores with other saprophytes may aid in producing suppuration. Therefore a norm must be demanded. Bandage materials should be sterilized under atmospheric pressure at 120 degrees for at least fifteen minutes. The mercury thermometers of the sterilizing apparatus should be standardized. Ordinary thermometers on sterilizers have been found to vary as much as 3 degrees. Spring manometers are not suitable as their limits of error reach as high as 25 per cent. However, since new apparatus is not obtainable immediately, sterility may still be obtained with apparatuses generating a temperature from 120 to 110 degrees by prolonging the time of exposure. Apparatuses permitting a temperature no higher than 110 degrees are of little value. It should be pointed out to the trade that blotting paper is impractical for inner wrapping. Steam will penetrate through 2 layers of firm sized paper.

FRANZ (Z.)

## ANÆSTHESIA

Jalco vltz A. Spinal Anæsthesia Induced with 5 Per Cent Novocain Solution with Special Consideration of the Blood Pressure (Zur Frage der Lumbalanaesthesia mit 5 proz. Novocainlösung bei besonderer Berücksichtigung des Blutdruckes). *W. er. m. d. W. chn. sch.* 1930 i 1265.

The author reviews 100 cases in which he induced spinal anæsthesia with a 5 per cent solution of novocain.

cain as recommended by Bier. He employs rustless spinal puncture needles which are washed out with sodium chloride solution just before they are used. The 5 per cent novocain solution is prepared freshly before each operation. A small amount of spinal fluid is withdrawn and from 2 to 2.5 c cm. of the novocain solution injected. Previous to the injection the anæsthetic is mixed in the syringe with double the amount of spinal fluid. After five minutes at the most the patient may be placed in any desired position. After the operation he is kept in the flat dorsal position for twenty-four hours. In none of the 100 cases reviewed were there any accidents.

The most dreaded sequela of spinal anæsthesia is the fall in the blood pressure which occurs to a greater or less extent almost regularly. Therefore special attention must be paid to the behavior of the blood pressure. The author found that in persons more than fifty years old the average maximum fall in the blood pressure was 57 mm. Hg, whereas in younger persons it was 21 mm. Hg. When caffeine as given by subcutaneous injection immediately before the induction of the spinal anæsthesia the

fall in the blood pressure in younger patients was not influenced but the average maximum fall in patients over fifty years of age was reduced to 36 mm. Hg. After the anæsthesia the blood pressure curves returned to normal in from forty-five to sixty minutes. The author never noted any serious complications such as respiratory or circulatory disturbances or symptoms of intoxication. Even common accidents of a less severe nature such as nausea and vomiting were rare as were also postoperative sequelæ such as headache and meningismus. The anæsthesia was always complete.

Spinal anæsthesia is not suitable for laparotomies as it does not prevent pain from traction on the mesentery. However in operations for hernia it is preferable to local anæsthesia. In cases of incarcerated hernia care must be taken to keep the incarcerated loop from slipping back into the abdominal cavity before it is inspected. As peristalsis is inhibited experience is necessary to judge the viability of an incarcerated loop of intestine. In the cases reviewed the duration of the anæsthesia averaged two hours. MAXIMILIAN HIRSCH (Z)

# PHYSICOCHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Diocles L. Telestereoroentgenography *Am J Surg* 1931 4 499

As an introduction to the practical aspects of telestereoroentgenography the author discusses binocular vision in relation to stereoscopy and reviews the fundamental principles and the advantages of the different methods of stereoscopy.

He states that much of the stereoscopic roentgenography that is done gives a defective plastic result. This is true especially as regards the larger cavities, particularly the thorax and is due to failure to observe the principle formulated by Druner that the stereogram should be taken at a focal distance at least 4 times the thickness of the part examined.

In a methodical study pursued for more than three years and including the exposure of more than 15 000 films the author found that the most satisfactory results are obtained by the use of from 70 to 100 ma under tensions between 100 and 125 kv peak. He makes use of the principles of superstereoscopy which have given excellent results in other fields. For this purpose he evolved a special apparatus which he describes in detail.

In order to obtain all of the information which perfect stereograms can yield it is necessary to examine them correctly. The author describes the various methods in detail. He believes that prism binoculars are best because they allow very rapid examination without fatigue and are relatively cheap and easily transported. He describes different methods of examining stereoscopic reductions and the methods of obtaining projections in relief.

ADOLPH HARTUNG M D

Ratti A. The Distribution of Energy in Deep Roentgen Therapy (La ripartizione dell'energia nella roentgente spina profonda). *Rad ol med* 1930 xvii 1213

Our present knowledge of the distribution of radiant energy in the depths of the tissues is based almost entirely on measurements made with phantoms. It remains to be determined whether these measurements are sufficiently accurate for use in roentgen therapy.

Ratti begins by reviewing the methods of research calling attention especially to the causes of error associated with the use of small ionization chambers. He then reviews the literature on this subject and reports the findings he obtained in a series of investigations made with the use of five different ionimeters in a small ionization chamber. He attempted to determine especially whether the lack of homogeneity in the structure of the human body causes variations

of importance in deep doses of irradiation. For this purpose he studied particularly the effect of osseous parts and cavities filled with air as compared with a screen of 0.85 mm of copper. From his findings he concludes that in general the variations demonstrated were not sufficient to decrease the practical value of the tables of deep dosage which are based on measurements made with a phantom.

Miescher G L. The Single Limit of Tolerance Dosage (Einmalige Hoechst-dosis). *Fortsch f Röntg strahlen* 1930 xli 64 94

Up to the present time two methods have been developed for the roentgen treatment of carcinoma. In one the complete destruction of the carcinoma cells is attempted at a single treatment and in the other by a number of smaller doses given at intervals. A disadvantage of the second method as compared with the first is its association with the still little known processes which are designated collectively as dispersion. According to previous findings cells with an active metabolism collect the irradiation to a less extent than cells with a less active metabolism, but on the basis of recent discoveries it must be assumed that under certain conditions of irradiation the dispersion factor may be a favorable influence.

Because of its accessibility skin cancer is well suited to the study of any form of cancer therapy. The author has had many years' experience with the single dosage method of intensive irradiation of skin carcinoma. The technique of the irradiation is on the whole a simple one with doses of from 1 200 to 1 500 R units including secondary irradiation a field measuring 4 by 4 cm and filtration with from 2 to 4 mm of aluminum. The results have been good: a primary cure (without recurrence) being obtained in 89 per cent of cases of basal cell carcinoma and 75 per cent of cases of squamous cell carcinoma. By means of subsequent treatment (irradiation or operation) the incidence of cure may be raised in the former to 94.5 per cent and in the latter to 80.5 per cent. A comparison of these statistics with those of Berven shows that the results of radium and roentgen ray irradiation are practically alike.

In infiltrating carcinoma the treatment described gives a cure in only 22 per cent of cases of tumor of the basal cell type and in only 28 per cent of those of tumor of the squamous cell type. A higher dosage is therefore necessary but in intensive irradiation the upper limit of dosage is 1 500 R units. More than this might destroy the regenerative capacity of the cells of the epidermis. In infiltrating carcinoma the divided daily dose of Coutard may give good results.

RUMP (G)



Nuernberg L The Bases of Late Injury from the Roentgen Rays as Shown by Experiments on Animals (Die t crep m t len (ru dl ge zur Fr g d Spaet ch ed gu g du ch I ontgen t ahlen) St ht the ap 930 v r t 432

The problem of germ injury from the roentgen rays has received increased consideration in recent years because of the experimental findings of Mueller who was the first to produce mutations in dew flies by roentgen irradiation. This article is a critical review of experimental findings with regard to germ injury by the roentgen rays. The author first discusses the concepts of germ and fetal injury and early and late impregnation. In contrast to concept of early injury (germ injury previous to the onset of roentgen sterility) late injury from the roentgen rays after the cessation of roentgen sterility is still disputed.

In reviewing observations which have been advanced as indicating an injury of descendants in late impregnation the author says that he entirely rejects the experimental findings of Fraenkel (1911). He believes that Fraenkel has not produced any definite proof of the occurrence of a late injury from roentgen ray irradiation and that the change in the entire organism of the irradiated mother animal influenced the gonads (somatogenic parallel induction according to Stieve of which numerous examples are cited).

Of the other findings which have been advanced as proving the occurrence of a late injury from the roentgen rays those of Lacassagne and Coutard (1923) are critically reviewed. The author does not accept the conclusions drawn by Lacassagne and Coutard as he believes that it may have been a common stall epizootic to which some of their irradiated animals succumbed and not a special sensitivity to intestinal infections such as was assumed by them. This appears probable especially as other causes of death come into consideration and the mortality among the descendants of the irradiated animal was no higher than that among the descendants of non irradiated animals.

To the well known investigations of Little and Bagg (1923) in which isolated individuals of the F<sub>1</sub> generation showed anomalies of the eyes and with continued inbreeding it was possible in some instances to produce up to 100 per cent abnormal animals the author raises the objection that only two irradiated pairs of mice of the descendants showed the eye anomalies (possibly no causal relationship but recessive hereditary anagen or spontaneous mutations). This objection is all the more valid because other investigators have observed the occurrence of hereditary eye anomalies in non irradiated mice. Moreover later investigations (by the author Bagg and McDowell) could no longer confirm the first finding.

After rejecting the experimental findings of Driessen (1924) the author takes up the investigations of Pankow (1930). Using a special technique Pankow irradiated only a single ovary in rabbits and

compared the descendants from the irradiated and non irradiated ovary. The former were less numerous and weighed less. The diminution in the number of the animals that originated from the irradiated ovary is attributed by the author not to injury of the germ but to an injury of the ovary. The difference in the weight of the animals from the two ovaries was not marked.

Before Nuernberger takes up the investigations on insects he describes briefly the anatomy of the female genitalia and the chromosomes of the dew fly. The occurrence of white eyed males in the investigations which were carried out by Mavor (1923, 1924) is explained by non separation of the X chromosomes. Mavor attributed the development of the anomalous individuals to the injury of ova present shortly before the second or the first maturation division.

Whereas Mavor was able to cause only another division but no change in the heredity Mueller was able to produce true mutations (lethal semilethal and visible) and thus new hereditary properties. After reviewing Mueller's results which are of great importance with regard to the problem of germ injury from the roentgen rays the author contends that it would be absolutely incorrect to conclude that Mueller's findings prove the occurrence of a late injury from the roentgen rays. In investigations carried out to determine why mutation did not develop in all of the irradiated germ cells in Mueller's experiments Harris found a relative ineffectiveness of the roentgen rays on immature germ cells.

After a short review of Whiting's findings in experiments on vases (following temporary sterilization normal males developed from unimpregnated ova) the author comes to the conclusion that evidence of a late injury from the roentgen rays has not been produced in a single instance.

In the second and shorter part of the article the author reviews the numerous findings which have been advanced to disprove the occurrence of a late injury from the roentgen rays. Against the findings of investigations limited to the F<sub>1</sub> generation (Regaud and Lacassagne, Doederlein, Foveau de Courmelles) the puttable objection may be raised that the animal of the F<sub>1</sub> generation which appeared after the cessation of the roentgen sterility although phenologically normal may have sustained a genetic injury which would become apparent only in later generations. Of the investigations in which the descendants from inbreeding were also studied the author mentions in addition to his own those of Dyroff, Robinson, Yamamoto, Bagg and McDowell. All of the observations show that from eggs that matured after the cessation of the roentgen sterility phenologically and genetically normal descendants developed. The author therefore draws the conclusion that late injury from roentgen ray irradiation has not been proved up to the present time and that the occurrence of a marked injury is improbable.

W. H. RITZ (G)

Naujoks H. The Development of Children Born After Temporary Roentgen Ray Sterility of the Mother (Die Entwicklung der Kinder die nach temporärer Strahlensterilität der Mutter geboren wurden) *Strahlentherapie* 1930 xviii 572

The author presents an important contribution to the question of injury to the offspring from irradiation of women who are still of the child bearing age. After a brief review of the present status of this question based on the most important of the works dealing with it he describes in detail the findings in and the development of six children in whose mothers temporary amenorrhoea or sterility had been produced by roentgen irradiation. The children were examined with the help of a pediatrician. In all of the women the ovarian function had been completely interrupted for a long period (up to two years).

Although in the individual case the question of definitely ascertained injury from irradiation or definitely ascertained absence of injury from irradiation can hardly be answered the author believes that the presence of anomalies cannot be looked upon as proof that the child suffered injury from the action of the rays. In order to preserve the scanty and hence all the more valuable material for later investigations which alone can clear up the question of injury to the offspring he proposes that carefully collected data on children born after roentgen amenorrhoea in the mothers should be collected by a central agency. He suggests as such an agency the

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WEHNERITZ (G)

## RADIUM

Cappelli L. Radioproteinæmia and Radio Anaphylaxis in Patients with Cancer Treated by Irradiation (Radioproteinemia e radio anafilassi nei cancerosi sottoposti a trattamento radioterapico) *Radiol med* 1930 xvii 1150

From immunological and biochemical studies made in the cases of patients with cancer who were subjected to effective radium irradiation Cappelli draws the following conclusions

1 The protein elements of the neoplastic mass which are resorbed as the result of radium irradiation are split up locally by the action of proteolytic enzymes into amino acids and their derivatives and in this form pass into the blood from which they are eliminated by the emunctories

2 This being the case the resorption of irradiated radiosensitive neoplastic masses is not followed by radioproteinæmia nor by any allergic state (radio anaphylaxis). Moreover these terms should be abandoned as the human organism because of its enzymatic resources is always capable of preventing the entrance of toxic products into the blood stream following the decomposition of tumorous masses in the process of regression

## MISCELLANEOUS

### CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Rutherford R True Hermaproditism *P c R y S c M d Lond 1930 v 147*

Rutherford reports the case of a 10 3-year-old child who was brought to the hospital for the radical cure of a left inguinal hernia. Although the general appearance of the child was female, the external genitalia resembled those of the male except that the testes could not be felt. At operation a uterus fallopian tubes and sex glands were found in the hernial sac and on microscopic examination testicular tissue and fallopian tube tissue were discovered in the same block. The tunica albuginea was invaded by cords of cells among which were those with the appearance of primordial ova showing much clear cytoplasm and a well defined nucleus. The testes contained seminiferous tubules which were not canalized. One section from the tunica albuginea showed specialized female genital cells. Because of the male and female elements in the same gland the author considers this a case of true hermaphroditism.

In the discussion of Rutherford's report it was stated that men with similar findings have been known to procreate. *CAREY V BRYAN MD*

Link K H Traumatic Edema and Forensic Medicine (*Fum t h Q dem d U i l l b gut ht g J d K l 930 897*)

In persons who are constitutionally predisposed to it, traumatic edema of the dorsum of the hand and foot occurs after light trauma which usually is not severe enough to produce a loss of tissue continuity. It consists of a doughy or tensely stretched swelling of the affected limb associated with a change in the appearance of the overlying skin. Usually slight atrophy of the bones is revealed by roentgen examination. Pain may be intermittent but always accompanies movement.

In a case observed by the author that of a girl twenty years of age on whose foot a flat iron had fallen the edema involved the back of the foot and the region of the malleoli. The patient exhibited sympathicotonia. Excised tissue from the diseased part showed a chronic inflammatory process of the subcutis and fascia with marked involvement of the vessels and nerves of the skin.

Artificial production of edema by repeated blows and ligation secondary edema and trophoneurotic edema must be excluded in the differential diagnosis. Treatment should be conservative. Massage is to be avoided but perianal sympathectomy may be considered. The condition is resistant and tends to recur. The loss of earning capacity is less than 50 per cent. *C E JANCKE (Z)*

DeJarnas J Superficial Epithelioma (Fom up f les d l ept l mas c ados) *P g d la d n M d n l 1930 i 750*

After a detailed discussion of the various clinical and histological classifications of superficial epitheliomata proposed by various authorities the author concludes that from the practical point of view there is no necessity for so much differentiation as the slight clinical and histological differences between the various forms do not affect the treatment. He believes that in the majority of cases the neoplasms are not precancerous tumors.

*AUDREY G MORGAN MD*

Freund E and Kammer G The Finding of Specific Intestinal Flora with Malignant Tumors Preliminary Report (*Ueb r d B f u d p f her Darm l be bo s art g T m e l l k l n l l f h 193 i 993*)

In a series of investigations Freund and Kammer were able to show that normal serum will dissolve carcinoma cells whereas the serum of persons suffering from carcinoma does not possess a carcinolytic property but on the contrary contains a carcinophilic substance which inhibits the solution of carcinoma cells by normal serum.

In a search for the site of formation of these two antagonistically acting substances in normal and carcinomatous serum Kammer found that while the organ possessing the greatest cytolytic power is the thymus the intestinal contents must be considered the site of origin of both substances because by the addition of fat it was possible to increase both the carcinolytic power of normal persons and the carcinophilic power of persons suffering from carcinoma. Both substances owe their formation in the intestine to bacterial influences. By inoculating milk enriched with butter fat and having a pH of 7.6 with a strain of colon bacillus obtained from a normal stool it was possible after from twenty-four to forty-eight hours to obtain an ether soluble fatty acid which dissolved carcinoma cells even in a dilution of 1 to 1000. *Bacillus subtilis* and *Bacillus algaligenes* did not produce this substance.

The demonstration of the formation of the carcinophilic substance—the carcinoma intestinal acid—was based on previous investigations of von Zerner which showed a weakly acid reaction of the contents of the small intestine in persons suffering from carcinoma. A weakly acid nutrient medium (pH 4.8) consisting of milk, butter fat and lactic acid was inoculated with the stools of persons suffering from carcinoma. The carcinophilic substance was demonstrated in the culture fluid in large amounts and transference of this culture first to acid and then to alkaline agar plates yielded a pure culture of a

modified strain of colon bacillus which in the originally slightly acid milk butter fat culture formed carcinoma intestinal acid in large amounts Wildbolz found that it does not reduce neutral red agar it forms a bouillon film and in litmus whey it produces a reduction from below upward

When the same culturing procedure was carried out with stools from normal persons and persons suffering from sarcoma no carcinoma intestinal acid was produced and the plates remained sterile The protective substance against sarcoma cells could be obtained by inoculating a 5 per cent Witte peptone solution mixed with oil emulsion with the stool of a person suffering from sarcoma When first acid and then alkaline oil peptone agar plates were inoculated with this culture there resulted a pure culture of staphylococci which when transplanted to peptone solution yielded an ether soluble fatty acid having a pronounced protective power against a solution of sarcoma cells However the bacteria acquired in this way could not be subcultured by inoculation of a normal stool because the necessary pH and albumin and fat content were not present

The authors by no means wish to attribute the development of carcinoma or sarcoma to the presence of the intestinal bacteria described but are inclined to the view that the further growth of tumors occurs not only at the expense of the cell substance of the surrounding tissue but is favored especially by the protective fatty acids that are formed under the influence of a pathological intestinal flora They found that mice with a carcinomatous intestinal flora which constituted 6 per cent of those used in their study are much more sensitive than normal animals to both inoculated carcinoma and experimental tar carcinoma

In the practical application of these findings to cases of carcinoma the authors have attempted to alter the intestinal flora by disinfecting the intestinal contents withholding animal fat enriching the food with carbohydrate free albumin oil and alkali and administering a normal strain of colon bacillus This treatment has been followed by diminution of the pain the retrogression of tumors and even complete disappearance of carcinomatous formations

HANS EHRICH (Z)

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## SURGICAL TECHNIQUE

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# International Abstract of Surgery

*Supplementary to*  
**Surgery, Gynecology and Obstetrics**

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# INTERNATIONAL ABSTRACT OF SURGERY

MAY 1931

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Masson P. Giant Neuronævus of the Hairy Scalp. *Ann Surg* 1931 xcii: 218

The author believes that pigmented moles are formed essentially by abnormal proliferation of the ends of the tactile nerves that nævi are neuro-neurinomata of tactile nerves and therefore not derived from connective tissue at all as has been supposed by some.

The specimen which is the subject of this article was taken at autopsy from a child of three years who died of bronchopneumonia. A decided elevation of the entire hairy scalp was noted. The hairs were sparse revealing a white epidermis which everywhere was smooth and flat. Palpation gave an impression of soft elasticity and vague fluctuation suggesting phlegmonous infiltration. Incision revealed an enormous (2 cm) thickening of the derma and hypoderm which were fused together in a perfectly white homogeneous tissue. This represented a generalized almost smooth pachyderma of the entire hairy scalp.

Histological examination showed two layers of equal thickness. The deeper layer corresponded to the hypoderm whereas the more superficial layer was compact and corresponded to the fibrous derma.

The deep zone consisted mainly of the tumor cells known as nervoid bundles a multinucleated and plexiform syncytium which was differentiated frequently into gigantic tactile corpuscles and traversed by connective tissue septa containing voluminous arteries alongside which ran medullated nerve fibers. The superficial zone varied at different points. In places the fibrous tissue was normal and free from foreign cells. At other points the tumor bundles had completely invaded so that when the papillary layer of the skin was reached they were grouped in masses of cells rounded or in columns and many of them contained melanin pigment unequally distributed.

The tumor thus possessed all of the histological structures of a mole or a neuronævus. It was of

extraordinary dimensions. It should be classed with the smooth pachydermias of the hairy scalp. It differed from ordinary nævi in the enormous development of the deep zone which formed a vast fasciculated and plexiform neurinoma at least 1 cm thick and in the huge size of its corpuscles. A further peculiarity was the inconstancy of the epitheloid cells which were found at certain points in the superficial zone often too distant from the epidermis for an epidermal origin. This feature was of interest in showing that a nævus may be formed without any involvement of the epidermis all of its elements even the superficial epitheloid cells springing from the cutaneous nerves.

MAURICE MEYERS M D

Dufourmentel L. Notes on Cancer of the Superior Maxilla (Notes sur le cancer du maxillaire supérieur). *Bull et mèm Soc d chirurgiens de Par* 1930 xii: 745

Cancers of the superior maxilla present several peculiarities which gives them a very distinct individuality. These peculiarities are:

1. The relative frequency of epithelioma in young adults.

2. The strictly local development of the condition in most cases. The lesion may become very serious locally without affecting the general health.

3. The indisputable curability of certain cases which appear desperate.

The author reports four cases. The first two show that while cancer of the jaw in young adults can be cured repeated operations may be necessary to eradicate it. In the first case the initial operation was performed ten years ago.

The mutilation need not prevent an active life. As long as the tongue and the base of the skull are not involved the breach may be hidden and the ingestion of food and phonation accomplished normally by the use of a prosthesis.

In the third case reported the patient survived fourteen years.

The operative technique must be adapted to the particular lesion. As a rule the orbital floor may be preserved, descent of the eye being thereby avoided. In nearly all cases the first step should be ligation of the external carotid. J. ACT

## EYE

Goldenburg M and Faberant N D. The Eye in the Tuberculous Patient. *J Ophth* 93 66

Because of the frequent statement that eye lesions are rare in pulmonary tuberculosis the authors made an exhaustive study of the eyes of 178 patients. 73 of whom had proved tuberculosis. Seven showed pathological changes in the iris and 19 showed fundus changes that could be considered as tuberculous. VIRIL WESCOTT MD

Harbridge D F. Eye Injury in Epileptics. *Am J Ophth* 193 21 2

The author reports three cases of injury to the eye during an epileptic attack. In one the globe was avulsed on a fall on a stick of wood. In another the eyelids and eyes were injured by a fall into a cactus plant. In the third the wound produced by the extraction of a senile cataract was opened a week after the operation and a deep pustular keratitis developed. SAMUEL A. DUBOIS MD

Sothy A. Latent Nystagmus. *B J Ophth* 193

While earlier observers were acquainted with latent nystagmus the Romagnets are credited with establishing it as a clinical entity. Under this name they have reported cases in which there was no nystagmus when both eyes were open cases in which nystagmus was present when both eyes were open if the eyes were either converging or in extreme positions and cases in which nystagmus was present normally when both eyes were open but became considerably more marked when one eye was covered.

These cases show that exclusion of an eye either converts a latent nystagmus into a manifest nystagmus or makes a manifest nystagmus more marked. VIRIL WESCOTT MD

Stutthelm N A. Indication for the Kinetoscope Treatment of the Fy's. *B J Ophth* 93 21 2

This exhaustive monograph includes a summary of the literature on convergence insufficiency and gives the author's own theories with regard to the condition.

Asthen vergence is defined as eyestrain in the presence of insufficient motor coordination subverting fusion of the ocular images. Numerous cases in which good results were obtained from kinetic treatment are reported. The treatment was carried out by the oculist with a modified Hazen kratometer. S. WELLS A. DUBOIS MD

Duane A. Accommodation. *Arch Ophth* 193 1

No one in America has contributed more to our knowledge of accommodation both scientific and practical than the late Dr. Alexander Duane of New York. Mrs. Duane has consented to the publication of some of the chapters from the book. Ocular Muscles which Dr. Duane had nearly completed at the time of his death. This article deals with some of the author's well known ideas regarding the current theories of accommodation, the cause of presbyopia, physical and physiological accommodation and the author's researches in this field.

VIRIL WESCOTT MD

Lavia L. Pigmented Degeneration of the Retina (D. G. N. 6 p. 6 m. n. t. i. a. d. e. l. r. t. n.) *Rev. 10-11-1931* 535

Pigmented degeneration of the retina is classified as a retinosis. Its course is slow and progressive. The classical signs are hemeralopia, changes in direct and indirect vision and the appearance of foci of pigmentation.

The author reports the case of a man fifty four years of age in which in some respects was atypical. The patient was under observation and treatment from February to September. For three years he had noticed that his vision failed at night came on. Both disks were excavated and the retina showed a ring of choroidal atrophy of the senile type. The pigmentation was more marked in the left eye than in the right. The Wassermann reaction was negative. Direct vision was normal. The changes in indirect vision are shown in diagrams.

Three courses of treatment were given. The first consisted of a daily dose of 12 pills of yastren for fifteen days, the second of 3 daily doses of hepato-glycerol for thirty days and the third of the daily administration for four weeks of 2 tubes of extract of liver. By the beginning of July the results showed improvement. By the first of September direct vision had lessened. The variations in indirect vision from month to month were unusual since in the typical case indirect vision decreases constantly and progressively.

From the relative preservation of direct vision on the integrity of the fovea, the reaction to treatment and the fact that indirect vision was fairly good, the concentric decrease for white not having become any worse and the field for red having enlarged, the author concludes that the prognosis in this case is rather good for the patient's age. The lack of sensitiveness to blue he attributes to the retinal lesions. The partial absorption of the pigment shown in photographs actually confirmed the theory of Krueckman that a pathological condition of the retina is a necessary preliminary to the infiltration of pigment and that the pigmentation is secondary and caused by the atrophy of the retina. The decrease in the pigmentation and the improvement in indirect vision in the case reported indicate slight regression of the lesions and prove that the treatment was logical.

AUTYGO. MORGAN MD

## EAR

Fraser J S Maldevelopments of the Auricle  
External Acoustic Meatus and Middle Ear  
Microtia and Congenital Meatal Atresia *Irish  
Otolaryngol* 1931 xiii 1

The author states that the external and middle ears are developed from the first visceral or pharyngeal cleft and the first and second visceral arches. The inner or medial part of the first cleft forms the eustachian tube and tympanum while the outer or lateral part is converted into the auricle and external acoustic meatus.

Microtia and congenital meatal atresia are due to maldevelopment of the structures mentioned. The maldevelopment must occur in the second month of fetal life. There is malformation not only of the auricle, external meatus and tympanum but also of the malleus and incus which arise from the cartilaginous bar of the first arch. The malleus is especially prone to maldevelopment. Moreover the laterohyal which is formed from the cartilaginous bar of the second arch is usually excessively developed and in many cases is responsible for the bony meatal atresia. The cause of the malformation is probably a fault in the germ plasma, but in rare cases mild deformity of the auricle may be due to intra uterine injury.

The tubercles that form on the external surface of the first or mandibular arch do not develop in the normal manner. Auricular deformity varies from slight malformation such as the pointed or darwinian ear to total absence of the auricle.

The invagination of the surface epithelium which forms the primitive external acoustic meatus fails to develop or develops imperfectly. In consequence the tympanic ring which is formed by ossification of the mesoblast around the tympanic membrane is congenitally defective or absent. The meatal atresia may be membranous or bony.

The otic vesicle from which the membranous labyrinth is formed develops earlier than and quite independent of the external and middle ear. The labyrinth is usually normal in cases of microtia and congenital meatal atresia.

In a typical case the auricle is malformed or absent, the external meatus is occluded by bone, the malleus is small or absent and the incus is large and misshapen. The tympanum is narrowed not only from above downward but also from side to side and the window niches are occluded by connective tissue. The facial nerve is usually small and may cross the tympanum uncovered by bone.

Microtia and meatal atresia are not rare. They occur more frequently in males than in females and more often on the right side than on the left side. They are more frequently unilateral than bilateral. In rare instances they occur in more than one member of a family. Facial paresis, maldevelopment of the mandible, facial hemi atrophy and other congenital deformities are often associated with them.

Hearing tests usually show the results obtained in lesions of the sound conducting apparatus but even

in bilateral cases the human voice is usually heard well enough to allow development of the patient's speech (Toynbee). Functional examination by means of rotation tests usually shows the vestibular apparatus to be normal.

In unilateral cases operation should be performed only when otitis media and mastoiditis are present on the affected side. In bilateral cases operation is indicated only if the deafness is marked and roentgenograms and functional examination show that the labyrinth is normal (Marx).

JAMES C BRASWELL M D

McKenzie D The Pathogeny of Aural Cholesteatoma *Proc Roy Soc Med Lond* 1931 xxiv 332

The author discusses the manner in which growing epidermal cells gain the interior of the tympanic antrum and mastoid cavities to form aural cholesteatomata. In rare cases these tumors occur as primary growths without suppuration but in the otological literature reference is generally made to the secondary type with suppuration.

The formation of cholesteatomata has been attributed to the immigration of cells, transformation or metaplasia of cells from irritation, suppuration and desiccation. As a primary cholesteatoma may form in the temporal bone without antecedent suppuration and as suppuration is not found in it until after the occurrence of rupture into the tympanum with secondary infection it is open to question whether the condition is ever the sequela of suppuration. The author discusses the origin of primary cholesteatoma of the temporal bone.

Cholesteatomata showing a structure identical with that of aural cholesteatomata have been found in the subarachnoid cisternæ at the base of the brain. This fact suggests that such growths are formed by the inclusion of epidermal cells during embryonic life. The author favors the inclusion theory. He is so convinced of the primary nature of cholesteatomata that he believes the theory attributing them to suppuration is based on error in the interpretation of clinical and pathological findings.

GEORGE R McAULIFF M D

Bonnahon J A Contribution to the Bacteriological Study of Suppurations of the Ear Caused by Aerobic Pyogenic Bacteria (Contribution à l'étude bactériologique des suppurations auriculaires à microbes pyogènes aérobies) *Irish Journal of Laryngol* 1930 xxvi 897

Bacteriological examination should be practiced systematically in suppurations of the ear as it gives valuable information with regard to the prognosis and treatment. In acute suppurations the bacteria most frequently found are streptococci and pneumococci. Otitis complicated by mastoiditis particularly that of hæmatogenous type and septicæmia are generally caused by streptococci. In pneumococcus infections there is less tendency for the condition to become generalized and the prognosis is more favorable.



able. However infection due to the pneumococcus of the third type pneumococcus mucosus is particularly to be feared because of the enormous destructive lesions associated with it and the fact that it is frequently propagated to the meninges.

In staphylococcus mastoiditis which is the most benign form a very small drain may be used or the wound may be closed completely. In streptococcus mastoiditis the wound must be drained freely and frequent cultures must be made as the streptococci may remain virulent for a long time and cause serious late sequelæ such as thrombophlebitis and meningitis.

Bacteriological examination is of course a necessary prerequisite to vaccine or serum treatment. In acute cases only staphylococcus infection seems to be amenable to vaccine treatment. In subacute and chronic cases vaccine treatment is more successful against other forms of bacteria. Nisnevitch reports using local vaccination successfully in twenty-one cases of scarlatinal otitis.

Serum therapy seems to be successful only in pneumococcus infection. The anti-pneumococcus serum of the Pasteur Institute seems to be effective against all but the mucous pneumococcus mucosus. Human blood either normal or prepared by immunotransfusion seems to be preferable to horse serum.

AUDREY GOSS MORGAN M.D.

## NOSE AND SINUSES

Gay A. Tumors of the Nasopharynx (Tumors of the Nasopharynx) *S. M. Ed. 1930. 63.*

The author reports twelve cases of tumor of the nasopharynx and supplements his report with sketches of the operations, photographs of the patients and photomicrographs.

He divides nasopharyngeal tumors into five groups: (1) the nasal, (2) the auricular, (3) the glottic, (4) the nervous and ocular, and (5) the mixed.

He states that as the symptoms of tumor of the nasopharynx are at first the same as those of other affections involving the same region a careful rhinoscopic examination for tumor should be made in every case presenting nasal paranasal or a nasal symptoms.

The prognosis depends to a great extent on the time at which treatment is given. In cases of nasopharyngeal fibroma treated early the prognosis is very favorable. In cases of malignant tumor the operative prognosis is favorable but there is always danger of recurrence.

For the treatment of fibromata Gay recommends only diathermic coagulation with the technique and instruments of Samengo which he shows in illustrations. For malignant tumors he recommends diathermic coagulation by the same technique either alone or combined with deep roentgen and radium therapy depending on the clinical form of the tumor and the period of its development when the treatment is begun.

AUDREY GOSS MORGAN M.D.

## NECK

Romanelli G. Variations in the Iodine Content of the Thyroid in Pregnancy and in the Fetal Thyroid (Sull'effettuale variazione del contenuto di iodio della tiroide in gravidanza e nella tiroide fetale) *Arch. d. Sc. Med. Ec. 930. xx. 76.*

The chief of the obstetrical and gynecological clinic at Siena Spinto concluded from his investigations some years ago that the thyroid increases in size during pregnancy and still more so during labor and then decreases rapidly in the puerperium with two slight rises on the fourth and seventh days that the increase during pregnancy is due chiefly to hyperæmia and retention of colloid and to a less degree to hypertrophy that the increase during the puerperium is due only to hyperæmia and that the histological and microchemical changes show hyperfunction. These conclusions were later disputed some gynecologists even claiming that there is hypofunction of the thyroid during pregnancy.

The author studied the problem by Fabozzi's method of fixing sections of the thyroid with palladium chloride and 10 per cent formalin and examining them microscopically with or without staining. When this method is used the iodine appears in the form of black granules. The experimental animals were guinea pigs at various stages of pregnancy and the puerperium. Non-pregnant guinea pigs were used for controls.

Romanelli found that in the pregnant animal the vesicles of the thyroid were increased in size while the cells assumed a low cubical form. The colloid stained more intensely than in the non-pregnant animals because it was denser. The black iodine granules were more numerous than in the non-pregnant animals the increase being in proportion to the stage of the pregnancy. In the puerperium the iodine content rapidly returned to normal.

The thyroids of embryos and fetuses did not give any reaction by this method. No iodine could be demonstrated in the thyroid until several days after birth. This finding refutes the generally accepted theory that the iodine of the thyroid has an important effect on growth. It is possible however that the iodine requirement for growth may be supplied by the mother's thyroid.

AUDREY GOSS MORGAN M.D.

Walters O. M., Anson B. J. and Ivy A. C. The Effect of X Rays on the Thyroid and Parathyroid Glands *Radiology 931. xv. 5.*

Several attempts have been made in the past to determine the effect of irradiation on the thyroid gland. The results were rather inconclusive as the animals were killed too soon after the irradiation. In the investigation reported in this article which was carried out on dogs the animals were killed at various intervals up to nine months after the treatment.

A technique and dosage identical with that used in the clinical treatment of hyperthyroidism was

employed and followed by histological examination of the thyroids. Only a slight change in the nature of hyperplasia was revealed. When a dosage sufficiently excessive to produce ulceration of the skin was given the capsule of the gland was found to be thickened although the parenchyma was little altered.

Doses such as are used in the treatment of hyperthyroidism produced hyperplasia of the parathyroids. In the dogs which were allowed to live for several months following the treatment a definite increase in the connective tissue and in spite of the hyperplasia a gradual slight decrease in the blood calcium were found.

It is pointed out that these results do not necessarily apply to the hyperplastic thyroid or Graves disease which is a different problem.

The results indicate that the clinical dosage used in the treatment of hyperthyroidism will not injure the parathyroids. CHARLES H. HEACOCK, M.D.

**Brown A.** The Influence of Cervical Paravertebral Anesthesia upon the Pulse Rate During Operations upon the Toxic Thyroid Gland. *Surg Gynec & Obst* 1931 51: 25

The use of iodine in the pre operative preparation of patients with goiter has proved of great value in preventing collapse during the operation and decreasing the danger of thyroid crisis after the operation. Nevertheless whatever the type of anesthetic used for the thyroidectomy the pulse becomes more rapid during the operation and the necessary operative manipulation places added strain on the already overstimulated heart.

The impulses which control the rate of the heart reach the heart through the sympathetic and parasympathetic nervous systems—the accelerator impulses through the former and the depressor impulses through the latter. The fibers of the sympathetic nervous system through which the accelerator impulses are conveyed arise at various levels from the sympathetic ganglionated cord which extends from the superior cervical to the fourth thoracic ganglion and may be divided into three groups—the upper the middle and the lower. The upper group includes the superior and middle cervical cardiac branches of the sympathetic the middle group the lower cervical cardiac nerve which arises from the lower cervical ganglion and the lower group the upper thoracic cardiac nerves.

Considerable accelerator stimulation of the heart is therefore carried by nerves which have their origin in the upper portion of the neck in close proximity to the points of emergence of the four upper peripheral cervical nerves and the transverse processes of the four upper cervical vertebrae.

From investigations of the influence of cervical paravertebral anesthesia on the pulse rate during operations on the toxic thyroid gland the author draws the following conclusions:

1. Cervical paravertebral anesthesia anesthetizes the upper cervical nerves the upper cervical sym-

pathetic ganglion and the upper part of the sympathetic cord.

2. After the induction of this anesthesia these nerves are incapable of transmitting accelerator impulses to the heart and the moderator impulses of the vagus reach the heart opposed only by the accelerator impulses through the lower cervical and upper thoracic cardiac branches of the sympathetic. As a rule these are not strong enough to overcome the vagus completely and the pulse rate falls.

3. During subtotal thyroidectomy for hyperthyroidism cervical paravertebral anesthesia exerts a definite slowing effect on the rate of the pulse.

4. As cardiac shock is reduced under paravertebral anesthesia the operative procedure does not diminish the patient's already weakened reserve and the postoperative course is smoother and associated with less cardiac reaction than when other types of anesthesia are used. R. B. V. SHERR, M.D.

**Boothby W. M., Haines S. F. and Pemberton J. de J.** Postoperative Parathyroid Insufficiency. *Am J M Sc* 1931 81: 81

Postoperative parathyroid insufficiency is a syndrome characterized by a decrease in the serum calcium accompanied by irregular intermittent attacks of tetany and in the later stages constitutional changes of a trophic nature. It is due to surgical extirpation or trauma of the parathyroids which results in more or less complete cessation of the functional activity of these glands. It may occur when a standard operative technique is used and therefore is often unavoidable.

On account of the rarity of this syndrome it is difficult to obtain a sufficient number of cases for observation of the symptoms and the effect of different methods of treatment. During the six years from 1924 to 1929 inclusive thyroidectomy was performed at the Mayo Clinic approximately 13,300 times. The ratio of female to male patients was approximately 3:1. Parathyroid insufficiency was not noted in any of the male patients in this series.

In acute postoperative parathyroid insufficiency the tetanic spasms including laryngeal spasm can be controlled by the administration every two hours of a generous teaspoonful of powdered calcium lactate dissolved in water. In the more severe cases in which there is difficulty in swallowing 5 or 6 additional teaspoonfuls of calcium lactate dissolved should be given by rectoclysis. The intravenous administration of calcium chloride is necessary only rarely and the administration of parathormone is hardly ever required in the immediate postoperative period.

In the milder cases of chronic postoperative parathyroid insufficiency (in some of which the insufficiency is probably not complete) the condition can sometimes be controlled by the regular administration 4 or 5 times a day of 1 teaspoonful of calcium lactate dissolved in water and 2 or 3 teaspoonfuls of cod liver oil daily. Irradiated ergosterol may be used instead of cod liver oil but as yet the

dosage advisable for long periods has not been determined

In the more severe cases including those in which the insufficiency apparently is complete parathormone must also be administered. As in all deficiency diseases the medication must be continuous and regular. In the presence of complete deficiency it must probably be administered indefinitely. It is known that a quantity of the active principle of the thyroid gland which will not cause serious trouble when given in a single dose may if given repeatedly cause marked hyperthyroidism and even prove fatal. It is pointed out also that the use of parathormone in large doses which may be safe if for a short period may be harmful if continued for a long period. In general it has been found that for continuous administration only small doses such as 5 units daily or 20 units every other day should be used. In some cases however 20 units every day and occasionally 20 units daily for short periods will be necessary. The use of larger doses over any considerable time is probably dangerous.

Under treatment with calcium lactate and cod liver oil or irradiated ergosterol such as has been outlined even patients with severe and apparently complete parathyroid insufficiency can be maintained in good if not perfect health. If the parathyroid insufficiency is less severe and apparently not complete the patient can be maintained in good con-

dition without parathormone if suitable doses of calcium lactate and cod liver oil or irradiated ergosterol are administered.

Negus V E. Observations on Semons Law  
*J Lab & Clin Med* 1931 xl 1

The larynx consists of a sphincteric girdle the adductor muscles which close it and a group of dilator or abductor muscles which open it. Semon in 1881 called attention to the tendency of the abductor fibers of the recurrent laryngeal nerve to become affected sooner than the adductor fibers in peripheral disease or injury and in disease of roots or trunks of this nerve. This is evidenced by the fact that if the recurrent laryngeal nerves are pressed upon or the function of these nerves is disturbed movements of closure may still be possible but not movements of dilatation.

The author reviews the comparative anatomy and anatomical structure of the larynx in certain fish and mammals the mechanism of closure of the larynx during deglutition in different animals the anatomical structure of the larynx which allows simultaneous respiration and deglutition in certain species and the mechanism of voice production in man and animals.

These observations indicate that the sphincteric band has a vital function and originated earlier in the scheme of evolution than its antagonists the dilators.

WILLIAM J. FLETCHER M.D.

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Mock H E Skull Fracture and Cerebral Injuries  
*Internat J Med & Surg* 193 xlv 1

Mock discusses skull fracture and cerebral injuries on the basis of his last 100 cases. He stresses the importance of prolonged rest in bed. He states that roentgenograms should always be made but that the roentgen examination should be delayed until the patient's life will not be jeopardized by the manipulations incident thereto. He regards lumbar puncture as an important procedure when it is indicated but believes it should not be done as a routine measure. LEO M DAVIDOFF MD

Egidi G The Treatment of Traumatic Cranio cerebral Lesions with the Exception of Gunshot Wounds (Trattamento dei lesioni cranio cerebrali traumatiche escluse quelle da arma da fuoco) *Riforma m d* 1930 xli 16 2

As depressed fractures of the skull even when deep rarely cause signs of compression of the brain many surgeons advise against operating upon them. According to others systematic operation should be done not only for correction of the bone deformity but also for treatment of the lesions of the brain and meninges that often occur at the site of the depression and may later cause epilepsy even when they do not produce immediate symptoms. If the dura and brain are injured a search should be made for penetrating bone fragments and if any fragments are found they should be removed. The dura should then be sutured the breach in the bone repaired with the fragments and the skin sutured. In open fractures the wound of the soft parts should be cleansed and trimmed and any bruised or necrotic tissue removed. All bone fragments should be removed and the edges of the dura regularized. If absence of pulsation indicates compression of the brain a larger incision should be made and hematomata and bruised brain tissue removed. Closure of the wound is probably less dangerous than drainage but if infection develops the wound must be opened at once.

Intracranial hematomata may be diagnosed by spinal or cranial puncture and by roentgen examination after the subdural space and ventricles have been filled with gas. The gas may be introduced directly into the lateral ventricles or by lumbar puncture. As there is some danger in the introduction of air in recent injuries the author advocates exploratory puncture of the skull in such cases particularly those with signs of compression.

The treatment of diffuse traumatic cerebral compression includes the treatment of fracture of the base of the skull. The latter is responsible for most

of the deaths from trauma of the skull. The mortality of fracture of the base is 50 per cent and more than half of the deaths occur within the first twenty-four hours. Decompression should be done early and systematically for if the compression reaches the paralytic stage treatment may do harm instead of good. Dehydrating treatment should be given at once and at the same time an exploratory cranial puncture should be done to determine whether the compression is caused by a hematoma. If the result of puncture is positive the hematoma should be aspirated. If it is negative the dehydrating treatment should be continued for several weeks. When magnesium sulphate is used to obtain dehydration signs of intoxication are rare but there is a possibility of causing too great dehydration. If the pulse becomes rapid from dehydration the magnesium sulphate should be stopped and fluid should be given. In some hospitals this treatment combined with repeated lumbar puncture has been adopted in place of decompressive trephination.

Dehydration therapy is absolutely contraindicated in cases of hypothermia with a rapid pulse from loss of blood and in cases of shock with a low blood pressure and a rapid pulse and respiration. Such cases should be treated with heat and stimulants as any further dehydration might be fatal. When shock is associated with cerebral compression there is not much hope but in some cases life may be saved by the immediate intravenous injection of small amounts of glucose solution for the shock and puncture of the ventricles or lumbar puncture for the compression. When the shock is over dehydrating treatment with magnesium sulphate may be given. The treatment depends on the pulse and respiration. If the pulse is over 120 fluids should be administered if the respiration is less than 20 or irregular dehydration is indicated. The temperature and pulse should be recorded as their variations are more important than their absolute values.

Death from brain trauma is due to disturbance of respiration but as the medulla frequently does not show any demonstrable lesions it is probable that some of the lesions are functional and remediable. If life can be prolonged by artificial respiration function may return. AUDREY GOSS MORGAN MD

Giacobbe C The Treatment of Craniocerebral Traumatism Except Gunshot Wounds in Military Medicine (Trattamento dei traumi cranio cerebrali esclusi quelli da arma da fuoco in medicina militare) *Riforma m d* 1930 xli 1628

The author reviews 257 cases of craniocerebral injury.

Cases of simple cerebral concussion without fracture should be treated by the application of an ice



and in 1926 took a rest cure for pulmonary tuberculosis. In December 1928 he fell on the ice sustaining a shock to the spine which kept him in bed for a week. After this injury he suffered from pain in the back in the region of the shoulders and weakness in the left hand. In February 1929 he first noted weakness, cramping and a loss of sensibility in the legs. On March 4, 1929, intermittent retention of urine and constipation began and a marked increase in the weakness of the hand was noted.

The patient was of average size and in a satisfactory state of nutrition. Physical examination revealed marked weakness in all of his limbs and flaccid paralysis of his arms. The weakness was especially marked on the left side. The triceps and biceps reflexes on the left side were absent. The legs showed marked rigidity and exaggeration of the reflexes. The Babinski reaction and ankle clonus were present on both sides. Because of spastic paralysis of the legs the patient was unable to walk. The triceps and biceps muscles showed a reaction of degeneration. In the region between the thoracic and fourth lumbar nerves there was a marked diminution of sensibility to pain and temperature. Tactile sensibility diminished. There was ptosis of the left eyelid. The pupils were equal. The cerebrospinal fluid was clear and transparent. It showed a trace of albumin but no pleocytosis. The Wassermann and Sachs-Georgi reactions were negative. Lipiodol introduced into the spinal canal by suboccipital injection was arrested at the upper level of the sixth cervical vertebra.

Laminectomy performed under local anesthesia in the region of the sixth and seventh cervical and first thoracic vertebrae revealed marked thickening of the dura mater and arachnoid and a cystic accumulation of fluid. The membranes of the cyst were formed by the arachnoid and there was a depression of the cord at the site of the cyst. The cyst was evacuated and the thickened arachnoid removed.

Three months after the operation the patient was walking normally, his muscular strength had returned and the ptosis had disappeared.

In this case the spinal cord was compressed by a localized meningitis (arachnoiditis). The clinical symptoms seemed to suggest an intramedullary process, either a hamatomyelia or an intramedullary tumor.

The second case was that of a man forty-eight years of age who entered the clinic complaining of weakness and cramps in the legs and weakness in the back. For two years he had noted great fatigue on walking and four months previous to his entrance to the clinic he had fallen from a ladder. A month after the accident he began to have girdle pain and pain about the umbilicus. Spinal puncture performed at a hospital was followed by aggravation of the symptoms. The spinal fluid was normal.

The patient was of average size, well developed and in a good state of nutrition. He had a slight facial paralysis on the right side and a slight ptosis of the right eyelid. The pupils were equal. The legs

showed considerable muscular weakness. The arms were stronger but there was some weakness in the left arm. The muscles of the legs showed marked spasticity and exaggerated tonus. Patellar and ankle clonus was present on both sides but more pronounced on the left side. Cutaneous sensibility was disturbed below the fourth thoracic vertebra. Sensibility to touch was only slightly changed whereas sensibility to pain and temperature showed a marked decrease.

These findings suggested syringomyelia, central hamatomyelia or intramedullary tumor. The subsequent development of the symptoms, especially the development of the Brown-Sequard syndrome, suggested a tumor causing lateral compression of the cord and a suboccipital injection of lipiodol seemed to show a tumor at the level of the first thoracic vertebra.

At laminectomy performed at the level of the first and second thoracic vertebrae under local anesthesia a subdural tumor measuring 3 by 1 by 0.5 cm was discovered. On histological examination this was found to be a neurinoma. There was a secondary dilatation of the spinal canal due to pressure of the tumor and the accumulation of fluid.

A month after the operation the patient had recovered nearly completely. JACOB E. KLEIN, M.D.

#### Grant F. C. The Value of Chordotomy for the Relief of Pain. *Ann. Surg.* 1930, vol. 99, 8.

Grant reviews the development of chordotomy, discusses its neurophysiological basis and technique and reports the results of fifty-one chordotomies performed on forty-eight patients at the Hospital of the University of Pennsylvania. Thirty-one of the forty-eight patients were males. The average age was forty-seven years. Bilateral chordotomy was done in twenty-nine cases and unilateral chordotomy in twenty-two. Thirty-nine of the operations resulted in complete relief of the pain, eight in 75 per cent relief, two in 50 per cent relief and two in no relief. The causes of the pain included malignancy of the genito-urinary tract or vertebrae, a gunshot wound of the spine, sarcoma of the hip, retroperitoneal sarcoma, painful stump and tabetic crises.

The author believes that chordotomy is a better and easier procedure than section of posterior roots supplying the painful areas. He thinks the indications are definite in non-malignant conditions with intractable pain such as tabetic crises, osteoarthritis, painful stump and gunshot wounds. While he believes that in cases of malignancy in which survival will be brief the patient must himself decide whether the operation should be done, he is strongly in favor of it in such cases and urges that patients be referred to the surgeon before the debilitating effects of the primary disease make the surgical risk too great.

In the discussion FRAZIER like Grant gives credit to Spiller for conceiving the operation. He stated that although the procedure has a sound physiological and anatomical basis and although on

many occasions clinical demonstrations of its effect have been made. General practitioners are in general uninformed regarding its possibilities and he believes that relatively few specialists in urology and gynecology know what relief the operation would afford their patients with inoperable pelvic cancer. He called attention to the development in the technique whereby the operation may be done under local anesthesia and the fibers so selected that pain alone may be eliminated and other forms of sensation including temperature sense left intact.

LEO M. DAVIS, M.D.

### SYMPATHETIC NERVES

Daniilopolu D. The Present Status of the Surgical Treatment of Angina Pectoris (Lect. presented at the 10th International Congress of Medicine, Paris, 1929).

The author reports the results in twenty-eight cases of angina pectoris which were treated by suppression of the pressor reflex to the heart. Cutting the cardioaortic centripetal fibers will break the reflex. These fibers are distributed between numerous nerves of the thoracicocervical region. All of these nerves may be cut or resected except the vagus which contains the centripetal fibers maintaining the tonus of the respiratory center and the stellate ganglion through which pass the accelerator fibers and coronary vasodilators. In dogs the sino-carotid reflex is relatively unchanged after a coronary or

myocardial ligation when the stellate ganglion remains intact but shows profound changes when the stellate ganglion is excised. Lenche and Fontaine, though favoring excision of the stellate ganglion, found no sputable changes in the electrocardiograms after its excision in dogs. Evidence in man that excision of the stellate ganglion is dangerous is furnished by cases treated by Jonnesco, Kapis, Hoffer and Diez. In four of Jonnesco's series, death occurred within four days after the operation with conditions such as acute edema of the lungs and asystole of the left heart.

The operation performed by the author consists of cervical sympathectomy (without the inferior ganglion) with section of all of the vagus branches descending vertically toward the thorax (depressor included) and of the rami communicantes which unite the inferior cervical and first thoracic ganglia to the last three cervical and first thoracic nerves and the nerve fibers accompanying the vertebral artery. This operation was done in twenty-eight cases without accident. In most of the cases the attacks ceased or became less severe. In only two cases was the operation performed on both sides. The cases in which the attacks were merely diminished in intensity and frequency were among those in which it was done only on the left side. The cases were not selected. In cases of angina with attacks of systole the asystole ceased after the operation. The authors believe that excision of the stellate is dangerous and unnecessary. CARTER, M.D.

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

**Bloodgood J C** Borderline Breast Tumors *Ann Surg* 1931 **xviii** 235

A number of pathologists designate as borderline breast tumors those lesions which are difficult to diagnose clinically microscopically or macroscopically. Formerly tumors of this type were observed rarely, as women were apt to delay seeking advice regarding lumps in the breast for a year or longer and during this time many benign lesions disappeared and malignant tumors developed positive clinical and microscopic characteristics. In cases of borderline tumors the diagnosis is rendered difficult by apparent inconsistency between the microscopic and clinical findings. Not infrequently this is due to a marked difference between the training of the surgeon and pathologist in their respective fields.

Bloodgood reports a case in which Halsted operated for supposed adenocarcinoma in 1895. Re-examination of the microscopic section in the light of our present knowledge shows that the condition was undoubtedly chronic lactation mastitis. He says that the pathologist now understands the microscopic picture of chronic lactation mastitis and is not likely to be confused by the remarkable epithelial changes in a lactating breast which is the site of inflammation. He emphasizes that every pathologist should constantly restudy sections of chronic lactation mastitis and of all other borderline tumors seen by him. Definite benign tumors constitute 50 per cent of breast lesions. The borderline lesions are generally benign. When they are considered malignant a greater number of five year cures were reported. Bloodgood cites also a case in which in 1897 Halsted did a complete operation for a breast tumor because the pathologist made a biopsy diagnosis of adenocarcinoma. During the sixteen years the patient was traced there was no recurrence. Bloodgood now diagnoses this tumor as a non encapsulated benign cystic adenoma.

In removing a blue domed cysts Bloodgood removed some adjacent breast tissue which showed solid duct adenoma. The microscopic picture was confusing but was called benign although most pathologists tend to regard it as malignant. A similar microscopic picture was seen in 10 per cent of 210 cases of single or multiple blue domed cysts. In Schimmelbusch's or Reclus disease the breast is filled with small cysts and confusion with cancer is even more common than when only a few large blue domed cysts are present. In 1906 Bloodgood made a diagnosis of adenocarcinoma in a case of chronic cystic mastitis of this diffuse type. After a partial operation the patient lived nineteen years without recurrence.

Various stages of chronic cystic mastitis cystic adenoma old fibro adenoma rapidly growing intracanalicular myxoma all forms of tuberculous and pyogenic mastitis and changes in the breast after recent injury must be looked upon as borderline lesions. There is no question that the number of such lesions is increasing. ALTON OCISNER M D

**Amorosi O** Endothelioma of the Breast (*Lendotelioma della mammella*) *Clin ch* 1930 **vi** 1106

By some it is believed that endotheliomata of the breast are very rare and by some that they do not occur at all. The author attributes these theories to confusion with regard to the histological picture and the fact that the neoplasm may resemble carcinoma very closely. He reports the case of a woman of eighty years describing the histological findings in detail with photomicrographs. He believes that if all supposed carcinomata of the breast were carefully examined it would be found that many of them are endotheliomata.

It is not always possible to distinguish hemangioma endothelioma from perithelioma. In some cases these two forms are distinct but in others the tumor cells invade both the intima and the perivascular tissue. Neoplasms of the latter type should be called merely endothelioma or vascular tumors of the breast. With careful examination they can be differentiated clinically and histologically from carcinomata. AUDREY GOSS MORRAN M D

**Joel W** Cystic Disease of the Breast (Reclus) Its Origin and Malignant Degeneration (*Die Maladie kystique (Reclus) der Brustdrüse ihre Entstehung u d ihre maligne Entartung*) *Monatsschr f Geburtsh u Gynaek* 1930 **lxxv** 358

The author's discussion of Reclus disease is preceded by a brief review of the development of the mammary gland. In Reclus disease macroscopic examination discloses in one or both breasts diffuse more or less large cysts with greenish tenacious contents. Clinical symptoms are not always present. Microscopically there are found between unchanged enlarged or atrophic portions of the gland lobules with dilated end chambers and excretory ducts. Askanazy showed that these are not obstructions because the lining epithelium is increased in height and multiple layered epithelial proliferation is noted and in single layered epithelium the spinules are parallel with the greatest diameter during karyokinesis. According to the author's studies the spinules do not lie this way in multiple layered epithelium. The typical picture of Reclus disease is sometimes described as chronic cystic mastitis. In addition the author occasionally found cyst formations with proliferating papillae in the lumen (im



pulling force the connective tissue) He believes that the latter structures have nothing to do with Reclus disease They are intracystic papillomata He denies the inflammatory genesis of Reclus disease and believes that the moment the epithelia mature the basis for the tumor is present This may also become carcinomatous If entire gland lobules still within the membrana propria are filled with epithelial columns the patient should be treated as for breast carcinoma A radical operation is indicated whenever there are solid formations within the canaliculi Fibrosis of the breast plays no rôle in this disease

In conclusion the author states that when treating tumors of the breast we must determine whether we are dealing with fibroadenomata (tumors in which the connective tissue predominates over the epithelium) with simple or retention cysts or with Reclus disease a condition which may very readily become malignant as a result of epithelial proliferation  
H. S. O. N. W. V. (G)

Rubiniacci G. Carcinomatous Mastitis and Carcinoma of the Breast in Pregnancy (Natura et causa in m. tota r. m. mma. so in g. vidanza)  
R. g. n. a. t. a. d. i. n. t. e. p. 930 xi 753

The ovarian hormones especially lutein bring about hyperplasia of the breast in pregnancy The reticulo endothelial system is widely diffused in the breast and participates in functional hyperactivity of the gland In studies carried out on pregnant and non pregnant mice the author found that lutein brings about changes in the stroma which improve the nutrition of the epithelial cells and allow them greater liberty of growth This observation is in accord with the histological changes which have been found to occur in the development of carcinomatous mastitis

The author presents histological findings which show the transition of functioning mammary tissue into tumorous hyperplasia with concurrence of these changes in the stroma and particularly in the reticulo endothelial system He emphasizes however that these are only concomitant factors in the development of tumor the cause is still unknown

Audrey Goss Morcan M.D.

#### TRACHEA LUNGS AND PLEURA

Nelson H. P. and Simon G. The Accessory Lobe of the Azygos Vein B. M. J. 931 19

This rather unusual title refers to the azygos lobe of the right lung which is formed when during embryological development the lung bud instead of growing lateral to the azygos vein as normally grows directly toward the vein The resulting fissure in the lung then contains the azygos vein and can be seen in the roentgenogram as a fine white line which starts at the right of the sternum in the second intercostal space and runs cephalad to divide the apex of the lung into two lobes the inner one of which is the azygos lobe

In only one case in the literature was this anatomical variation of pathological importance In this case the azygos vein had so compressed the bronchus leading to the accessory lobe that bronchiectatic cavities were found in the lung beyond the stenosis  
WILBUR BAILEY M.D.

Smith D. T. The Etiology of Primary Bronchiectasis A. C. S. 12 103 xi Pt. 2 1173

Primary bronchiectasis is characterized by non tuberculous ulcerations and dilatations of the larger bronchi with a chronic course a distressing cough and large amounts of sputum which may be very foul

The essential lesion destruction of the elastic coat of the bronchus is caused by focal necrosis due to infection by the fusospirochetal group of an aërolic organisms which include *Treponema macrodentium* *Treponema microdentium* *Spirocheta vincentii* *Spirocheta buccalis* *Vibrios* and *Cocci* In active cases the organisms are constantly present in the sputum and by suitable staining methods can be demonstrated deep in the tissues of the diseased bronchi With this group of organisms bronchiectasis is comparable to bronchiectasis in man may be produced in rabbits

The special methods for the examination of the sputum for the spirochetes and fusiform bacilli are described in detail

Of 100 cases of non tuberculous bronchial disease bronchiectasis was demonstrated in 60 by the iodized oil method In 82 per cent of the cases of bronchiectasis the fusospirochetal group of organisms was found In a number of the cases of bronchiectasis which were treated by postural drainage and repeated courses of nearsphenamine or sulpharsphenamine the spirochetes disappeared first the fusiform bacilli and the vibrios next and the cocci last

Bronchiectasis may begin in one of three ways In some cases a membranous exudate forms on the surface of the bronchial wall and ulceration takes place beneath this covering More commonly the anaerobic organisms cause bronchopneumonia in which certain of the terminal bronchi are filled solidly with exudate The organisms then invade the bronchial wall and cause bronchiectasis by destroying the elastic tissue support In a third group of cases the bronchiectasis develops in the bronchi in which a lung abscess is draining

In 8 of 12 cases which came to autopsy spirochetes and fusiform bacilli were found in sections of bronchial dilatations stained by Levaditi's method In 4 of 6 other cases fusiform bacilli were demonstrated in sections stained by Goodpasture's method

In a series of 3 experiments on rabbits in which the simple aspirin method was used fusospirochetal material from pyotheca alveolaris acute focal spirochetal bronchitis and pulmonary abscess caused bronchiectasis as well as pulmonary abscess and gangrene Control inoculations with pure

cultures of staphylococcus aureus aerobic hæmolytic streptococci anaerobic hæmolytic streptococci green producing streptococci anaerobic streptothrix Friedlaender's bacilli and influenza bacilli failed to produce permanent damage to the bronchi

The author concludes that the fusospirochætal group of anaerobic organisms are responsible for primary bronchiectasis

In the discussion of this report Lord (Boston) stated that Smith's work had caused increasing attention to be paid to spirochætes and fusiform bacilli as etiological factors in abscess of the lung. He said that as a rule bronchiectasis develops as a complication of a bronchopulmonary disturbance and the pathological process in the lung is usually more important than the bronchial dilatation

HEDBLOM (Chicago) stated that there are numerous causes for bronchiectasis the most important of which are the acute infections occurring in childhood bronchopneumonia occurring at any age the various conditions that result in permanent atelectasis and those that produce an extensive fibrosis of the lung including fibroid phthisis. He cited Sauerbruch's opinion that involvement of the left lung is usually congenital. He did not agree with Lord's statement regarding the pathological changes as many patients who have had bronchiectasis for years show little evidence of pathological processes in the parenchyma of the lung. He stressed the importance of pre operative prophylaxis of the mouth and throat with special regard to destruction of the spirochætes

VAN ALLEN (New Haven) congratulated the author on the work he has done to establish the spirochæte as one of the main factors in chronic suppurative diseases of the lung. He believes however that spirochætal disease is not the cause of chronic abscess of the lung and bronchiectasis but a secondary contaminant which is responsible for the chronic stages of the disease. He called attention to the fact that the rabbit is particularly susceptible to spirochætal disease whereas the dog resists it. In the dog it is difficult to cause chronic lesions with spirochætes without producing an area of decreased resistance before implanting the organisms

SMITH (Ray Brook, N. Y.) described his work in isolating all of the organisms involved in abscess of the lung and bronchiectasis and then recombining them to determine the combination necessary to reproduce the disease. He found that when the spirochætes were added to the coccus vibrio and fusiform bacillus a severe lesion with an extensive necrosis and a foul odor was produced and the resulting disease could be transferred from one guinea pig to another almost indefinitely. The spirochætes alone and the other organisms alone or in any combination without the spirochætes did not produce such a lesion. The spirochæte is not secondary to the other organisms it is a concomitant rather than a secondary invader. Smith believes that Sauerbruch did not distinguish clearly between congenital bronchiectasis and bronchiectasis beginning in early

childhood as an infective process. He emphasized the importance of pre operative prophylaxis of the mouth and throat and the use of arsenic therapy and postural drainage in the treatment of bronchiectasis. He agreed with Coryllos that atelectasis is a factor in the development of certain cases of abscess and bronchiectasis. He stated that the fusospirochætal organisms do not readily survive on the surface of a bronchus they either disappear completely and leave no disease or they invade deeply into the bronchial wall where they produce bronchiectasis by destroying the elastic tissue

J. EDWIN KIRKPATRICK, M.D.

Vecchi A. Pneumectomy (La pneumectomia) *Arch ital di chir.* 1930 xxvii 537

Although a great deal of experimental work has been done on surgery of the lung in recent years it is still generally believed that a complicated technique is necessary to operate in the pleural cavity with any hope of success that the treatment of the sectioned bronchus is very difficult and that ordinary experimental animals particularly dogs will die of operative pneumothorax

The author reports a series of experiments on rabbits and dogs in which he removed an entire lung. He tried to determine the simplest technique with which this could be done to avoid the use of artificial respiration to discover whether the mediastinum of the dog is continuous and whether lack of continuity would have any effect in serious operations on the lung and to determine any histological changes that might take place in the stump of the bronchus and the remaining lung after the operation. Protocols of the experiments are given and supplemented with photomicrographs

It was found that in dogs pneumectomy could be performed with good results in a single stage on either side and in rabbits on the left side without special methods of anesthesia or artificial respiration or any apparatus for modifying intrapleural pressure. Ligation of the hilus of the lung *en masse* with a silk ligature was sufficient to bring about good closure of the bronchus if it was done with care. The results of operation and the operative and necropsy findings showed that there is no communication between the two sides of the mediastinum in dogs. The lung that was left always increased in size. Frequently the enlargement was uniform but sometimes there was a greater increase in the lower lobe which expanded to fill the entire opposite side of the thorax. Histological examination at first showed marked hyperæmia. In some cases this was accompanied by transudation of serum into the alveoli and slight small cell infiltration. This hyperæmia subsided and dilatation of the vessels and bronchi took place with an increase in the smooth muscle fibers in the walls and dilatation of the alveoli and infundibuli. Finally in about half of the animals marked emphysema developed with thickening of the interstitial tissue

AUDREY GOSS MORRIS, M.D.

Allen D S The Treatment for Penetrating Wounds of the Pleural Cavity *t h S g 193*  
x Pt 2 6

In penetrating wound of the pleura in civil life conservative non operative treatment is often best whereas in penetrating wounds of the pento cum radical operative treatment is usually indicated. This difference is based on the following facts:

- 1 The difference between the organs contained within each cavity
- 2 The difference in the pressure in each cavity. The pleural cavity tends to maintain cavities and the peritoneal cavity to obliterate them
- 3 The much less favorable reaction of the pleural cavity to the presence of contaminated blood as compared with the peritoneal cavity
- 4 The impossibility of placing the organs in the pleural cavity at effectual rest
- 5 The greater ease with which hemorrhage from the pulmonary circulation can be controlled than hemorrhage from the abdominal circulation

Simple gunshot wounds and stab wounds of the chest seldom require the elaborate surgical procedures which were employed during the war for the treatment of wounds of the chest.

The author reviews 162 cases of gunshot and stab wounds of the chest which were treated at the Barnes Hospital St. Louis and the St. Louis City Hospital. All of the patients were seen within four hours after the injury except two who were admitted to the hospital after twenty four and thirty two hours.

Death may occur soon after such injuries from shock and hemorrhage or later from complications. The chief complication is empyema.

In the cases reviewed the treatment is directed chiefly toward the prevention of hemothorax or the removal of the blood from the pleural cavity. A simple method of removing the blood from the pleural cavity consists in closing the wound in the wall of the chest and having the patient lie on the closed side. The blood gradually leaks out. In 38 cases in which this method was used there were no deaths. However in 6 of these cases sufficient blood remained in the pleural cavity to justify aspiration.

When extensive hemothorax is prevented there is little shock, sweating or fever and respiration is not labored.

In 2 of the cases reviewed operation was done for ligation of the intercostal artery but the pleural cavity was not explored. In 6 cases bullets were removed from the lung but in no instance before two weeks after the injury.

In the 135 cases in which the penetrating wound involved only the chest there were only 7 deaths. Three deaths were due to hemorrhage from the heart. The low mortality rate indicates that in simple stab and gunshot wounds of the pleural cavity occurring in civil life it is seldom necessary to explore the chest.

In the discussion of this report BAZIN stated that he was interested in the method of draining the

hemothorax by placing the patient on the wounded side. He said that during the war it was found inadvisable to close gaping wounds of the chest immediately. Bazen makes cultures and a direct examination of the aspirated material from the hemothorax after each aspiration. When infection is discovered he performs a thoracotomy followed by thorough cleansing of the hemothorax airtight closure and repeated aspirations. Under such treatment severe infection and massive empyema are prevented.

ELKINS cited 96 cases of penetrating wounds of the chest. Of the 89 patients who survived the immediate injury 3 developed empyema. One of the latter died and the 2 others developed chronic empyema which was exceedingly difficult to clear up.

LOCKWOOD advocated dealing with these cases and other injuries of the chest such as occur in automobile and airplane accidents along the lines developed during the war. He stated that first aid should include immediate closure of open wounds of the chest by adhesive plaster and the administration of morphine. If the patient is not holding his own at the end of about six hours and has a large hemothorax thoracotomy is indicated.

LORD suggested that the cultures be made under anaerobic as well as aerobic conditions.

BRUNY recommended removing the hemothorax and replacing it by air with the pneumothorax apparatus. He advocated conservative treatment of penetrating wounds of the chest with careful watching for hemorrhage and infection so that radical measures may be instituted sufficiently early to be of value.

VAN ALLEN requested an explanation of the failure of the blood to become coagulated as it lies in the pleura.

ALLEN replied that in a series of cases studied during the war Henry and Elliot found that the blood in a hemothorax is defibrinated blood. When all of the fluid was withdrawn from the pleural cavity an exudate from the pleura often contaminated the blood and produced clotting. They stated that the blood contains no fibrinogen. Allen does not believe this is true in all cases.

CORYLLOS stated that in cases of small bullet wounds conservative treatment is best but in cases of wound produced by small foreign bodies with great momentum which lodge in the lung tissue and after a few days will produce gas gangrene thoracotomy with preventive debridement of the wounded lung parenchyma is indicated.

LILIENTHAL said that the treatment outlined by Allen is adequate if bleeding from an intercostal artery can be definitely ruled out. In the presence of such bleeding non intervention would be fatal. He believes that aspiration is inadvisable in hemothorax as it causes the lung to expand so that the pulmonary wound reopens and the hemorrhage begins again. In cases of the kind under discussion he would rather use a thoracic pneumothorax than aspiration. J. EDWIN KILPATRICK, M.D.

# ŒSOPHAGUS AND MEDIASTINUM

Nehrkorn Posterior Thoracic Œsophagotomy for Foreign Body in the Œsophagus (Œsophagotomie a thoracica post. bei Fremdkörper im Œsophagus) *Zentralbl. f. Chir.* 1930 p. 2512

A razor blade was removed from the œsophagus of a twenty three year old man through a posterior thoracic œsophagotomy according to the procedure described by Enderlen and Sauerbruch. The wound was then partially closed and tamponed and the patient was fed through a retained stomach tube. At first there was a small œsophageal fistula through which only liquids escaped. This fistula closed spontaneously. Recovery was complete after six and one half months. The lumen of the œsophagus was entirely free.

The author reports also a case in which œsophago-gastrostomy by the method of Hevrovsky and Fromme was performed successfully for stenosis of the cardia.

Rectal avertin anæsthesia was employed in both cases.

In the discussion KUDLEK reported a case in which he and a laryngologist removed a dental plate which had lain in the œsophagus for some time through an exterior œsophagotomy with the aid of an œsophagoscope.

VON STEGEMANN recommended the specially designed distensible œsophagoscope for difficult cases such as Nehrkorn described. This instrument per-

mits dilatation of the œsophagus and thereby the removal of all foreign bodies. Von Stegemann then presented a man who had had a luetic involvement of the stomach. At laparotomy a clinical diagnosis of malignant tumor with stenosis of the cardia had been made. A gastro-enterostomy and Witzel gastrostomy were performed but after the condition improved the diagnosis was doubted and the Wassermann and Meinicke reactions were found to be 4+. The œsophagus was then dilated continuously and specific treatment was given. The patient made a considerable gain in weight and the stenotic manifestations at the cardia disappeared.

ROEPKE stated that in his opinion continuous venoclysis with normal saline and glucose solution is preferable to feeding through the stomach tube immediately after the operation.

VON HABERER agreed with Nehrkorn regarding the treatment of spastic stenosis of the cardia; he particularly recommended the method of Starck. He presented a patient who had been cured of an enormous dilatation of the œsophagus by trans-thoracic anastomosis between the œsophagus and the stomach.

FRIEDEMANN stated that all cases of long standing cardiospasm result in stenosis. He no longer operates but dilates by the Starck method.

NAEGELI said that in some cases operation only by the transthoracic route is indicated. One patient upon whom he operated died of pulmonary disease.

Hook (2)

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Fitch E M Some Causes of Failure in the Operative Treatment of Inguinal Hernia *Ver Englad J Med* 1931 ccl 49

The author believes that all indirect inguinal hernia are of congenital origin or due to faulty development at the site of the internal ring. Direct inguinal hernia are acquired.

For the cure of an indirect inguinal hernia and the prevention of a secondary indirect or direct hernia it is necessary to remove the funnel like opening and reinforce the middle inguinal fossa. In the operation recommended by the author the sac is opened separated from the cord up to and through the internal inguinal ring twisted pulled down crushed ligated and amputated. The stump of the sac is then transfixed upward and outward between parietal peritoneum and muscle. The cord and muscles are treated as in the Bassini operation with care not to strangulate much muscle tissue with the sutures. The external inguinal ring is not divided unless it is greatly enlarged but the fascia of the external oblique is incised from  $\frac{1}{4}$  to  $\frac{1}{2}$  in above the ring.

In direct hernia the sac is transfixed high up ligated and amputated and the stump is sutured over and over. The stump is then fastened high up under the internal oblique and transversalis muscles. Here as in indirect inguinal hernia muscle is sutured to the inguinal ligament. If tension is required to approximate the muscle and inguinal ligament this tension is relieved by separating the fascia of the external oblique from the internal oblique to the rectus muscle. At the level of the internal ring the aponeurosis of the fascia of the internal oblique and transversalis muscles is divided. The incision is begun at the lateral border of the rectus muscle and continued toward the midline and the pubes. This allows the fascia to slip downward and outward thereby relieving tension on the suture line where muscle is sutured to the inguinal ligament. The fascia of the external oblique covers the rectus muscle.

The author usually employs spinal or regional anesthesia and it is followed by less postoperative nausea and vomiting than inhalation anesthesia.

EARL O LATIMER M.D.

Bundschuh E Bile Peritonitis Without Riformation (Z. peitosen Gallapertitis) *A h f kl n Ch* 93 cl 549

Biliary peritonitis without perforation is discussed in the literature since 1915 when Clairmont and von Haberer observed and described the first case of this type. As they were unable to find any perforation

at operation or autopsy in spite of the intensely bile stained fluid in the peritoneal cavity they assumed that the apparently intact bile ducts had been rendered permeable by a macroscopically undetectable pathological process. Similar cases were subsequently observed by other clinicians who accepted the explanation of von Haberer and Clairmont. Others rejected this filtration theory. They said that the failure to find a perforation at operation or autopsy did not prove that a perforation had not been present.

Blad was able to show experimentally in dogs that a biliary peritonitis without perforation may occur after ligation of the common duct and the injection of pancreatic juice into the gall bladder. The wall of the gall bladder became as porous as a sponge took up bile and permitted the bile to escape into the peritoneal cavity. Macroscopically aside from thickening the gall bladders were little changed. However microscopic examination revealed complete necrosis of the gall bladder wall—a digestion necrosis without nuclear staining but with a well preserved wall structure—and marked serofibrinous exudation which had separated the connective tissue fibris. Evidence of inflammatory necrosis was lacking. Blad's observations brought new converts to the filtration theory. Similarly to Blad Schoenbauer was able to show that in the dog ligation of the common duct and the injection of pancreatic ferment into the gall bladder rendered the wall of the gall bladder permeable to its biliary content and was followed by gangrene of the gall bladder wall from the action of trypsin. In spite of these experimental results in the dog bile peritonitis without perforation of such origin had never been seen in man.

Three years ago the author reported a case in which as in the experiments of Blad and Schoenbauer calculus occlusion at the ampulla permitted the flow of pancreatic juice from the pancreatic duct above the stone into the common duct where it mixed with the bile. Stasis took place and extended upward in the ducts and particularly into the gall bladder. The gall bladder wall was oedematous the peritoneal surface of the oedematous area was covered with dew like drops of biliary fluid which immediately reappeared when wiped away. This was therefore a biliary peritonitis. The gall bladder showed no perforation and seemed little altered except for the oedema but microscopically it was found to be completely necrotic without nuclear staining and without evidence of inflammation. The condition was therefore purely a digestion necrosis. The necrotic gall bladder permitted its contents to filter through its wall as was clearly seen during the operation. Accordingly the peritonitis was due not only

to bile but also to pancreatic juice. The peritonitic exudate contained all of the constituents of pancreatic juice as well as bile. Furthermore there were numerous fat necroses in the abdominal cavity. The gall bladder bile also contained all of the pancreatic ferments.

The author was therefore able to show that in man also there may be a biliary peritonitis without perforation in which the bile filters through the gall bladder wall and that this may result from the direct entrance of pancreatic juice into the bile ducts with resulting gangrene of the gall bladder wall produced by the pancreatic ferments.

After this demonstration Ruppae reported a case of biliary peritonitis without perforation. Recently Westphal exhaustively studied the flow of pancreatic juice into the bile ducts and the flow of bile into the pancreatic duct and like Blad and Schoenbauer experimentally produced severe damage to the bile ducts and liver by injecting pancreatic juice into the common duct in several instances causing gangrene of the gall bladder and biliary peritonitis.

These views particularly in their generalizations have provoked energetic contradiction by Hoersch and Loeffler. Popper examined gall bladder bile for pancreatic ferments particularly for diastase and found that bile has no diastatic action. However in a case of stone occlusion of the ampulla in which the common duct and pancreatic duct opened together above the ampulla he found pronounced diastatic action as a result of the entrance of pancreatic juice into the bile ducts. In the meantime the author has had the opportunity to study a case which presented an entirely different etiological explanation for bile peritonitis without perforation.

A forty four year old man had frequent attacks of colicky pain in the right abdomen for several years. Several days before he was examined by the author the colic had recurred in the right upper quadrant in association with fever, nausea, vomiting and obstipation. The physician was able to palpate the distended and tender gall bladder. The remainder of the abdomen was free. On his admittance to the hospital the patient was found to be sturdy well nourished somewhat obese and free from icterus. Signs of generalized peritonitis were apparent. Enlargement of the gall bladder was not demonstrable. Operation revealed generalized biliary peritonitis. A site of perforation was sought. The gall bladder was only moderately enlarged and nowhere adherent but its wall was rather intensely inflamed, reddened and somewhat thickened. The portion of the fundus opposite the duodenum was greenish discolored over an area of 2 by 1 cm. The gall bladder was not tensely filled. Several movable stones up to the size of a cherry could be palpated within it. Nowhere could a perforation be seen and pressure to exert tension on the gall bladder contents failed to expel bile. The liver was free from pathological changes and showed no site of perforation. Cholecystectomy was performed and a very fine drain inserted in the

common duct. The peritoneal cavity was washed out and a tampon was inserted into the gall bladder bed. No specific pancreatic ferments such as trypsin and lipase could be found in the biliary peritoneal fluid or gall bladder bile. The patient died of pneumonia two days after the operation. Autopsy showed fat infiltration of the liver and extensive severe confluent bilateral bronchopneumonia. Histological examination showed severe phlegmonous infiltration of the cystic duct and particularly of the gall bladder walls. The peritoneal covering of the gall bladder was intact in all of the serial sections. A site of perforation therefore could not be found.

From these findings it is evident that the biliary peritonitis in this case did not arise from the action of pancreatic ferments on the bile duct. The most probable explanation is that there had been a perforation which permitted emptying of the gall bladder contents into the peritoneal cavity. Evidently following the release of the pressure in the gall bladder the occluding stone became freed and as the cystic duct then again became patent the bile again flowed into the gall bladder and from there through the perforation into the peritoneal cavity. Failure to discover the site of perforation is no proof that a perforation had not occurred and there is no adequate explanation of the biliary peritonitis in this case without assuming a site of perforation. Bile peritonitis without perforation may occur also in calculous occlusion of the cystic duct. The author believes that the non perforative bile peritonitis described may be considered a true perforative peritonitis.

VON LOBMAYER (2)

## GASTRO INTESTINAL TRACT

Le Wald L. T. Roentgen Diagnosis of Gastric Syphilis. *J Am M Ass* 1931 xcvi 179

Le Wald believes that the frequency of gastric syphilis is greater than is indicated by the number of reported cases. A correct diagnosis is of great importance not only because of the possibility of complete recovery under anti syphilis treatment but also because extensive surgery may be undertaken if the diagnosis is wrong. Before the patient is subjected to operation for suspected carcinoma of the stomach a roentgen examination should be made by a roentgenologist competent to differentiate between carcinoma, linitis plastica, ulcer and syphilis of the stomach. When the diagnosis is doubtful repetition of the roentgen examination may show improvement after an active course of anti syphilis treatment. In congenital cases of syphilis with no other signs of syphilis besides the gastric signs the condition may be unrecognized unless a roentgen examination is made. Gastric analysis shows diminution or absence of free hydrochloric acid which is due in some cases to the rapid emptying of the stomach and in others to extensive involvement of the acid producing portion of the stomach.

Roentgen examination shows that the stomach is diminished in size and empties almost immediately.

often with a compensatory dilatation of the œsophagus. It reveals also a symmetrical dumbbell deformity in the middle portion. When this type of deformity is found in a young person or in an older patient without the cachexia to be expected from malignancy producing such deformity gastric syphilis may be suspected and if a positive Wassermann reaction is obtained the diagnosis is practically established. In cases showing the remarkably small tubular stomach of linitis plastica it is necessary to rule out fibromatosis and carcinoma. In some cases the roentgen examination discloses localized areas of infiltration of the stomach wall similar to those seen in carcinoma but in syphilis the lesion is more extensive and has a smoother outline. A syphilitic lesion situated at the pylorus may produce marked stenosis and gastric retention suggesting ulcer or carcinoma but is always more extensive than the lesion produced by ulcer alone.

Syphilitic deformity of the stomach has been seen to disappear after anti-syphilis treatment. In a series of cases in which such treatment was given there was no recurrence over observation periods ranging from ten to seventeen years. In some cases surgical measures may be necessary because of catenization at the pylorus causing obstruction. This condition is usually an indication for gastroenterostomy. In no case has a jejunal or marginal ulcer developed after gastroenterostomy. Extensive resection of the stomach should be avoided when the diagnosis of gastric syphilis has been made by roentgen examination and when the lesions are atypical of ulcer and carcinoma of the stomach.

F S PLATT M D

Jacarelli E. C. Institution and Heredity in the Pathogenesis of Gastroduodenal Ulcer. (Costa d'ediz. et al. la p. 109. d. 110. ra g. t. d. ode. l.) Pol. i. Rom. 193. xxx. i. p. t. 809.

After reviewing recent work on the importance of constitution and heredity in the pathogenesis of gastroduodenal ulcer the author presents the history of a family of thirteen persons (grandparents, children and grandchildren) ten of whom had signs of organic gastroduodenal lesions. Almost all of the lesions were of the ulcerous type.

A study of the literature and the author's cases indicates that the constitutional factor is probably the transmission of a special sensitiveness of the gastroduodenal mucous membrane secondary to congenital or acquired disturbances of the vegetative nervous system, chiefly the vagus.

AUDREY GOS MORGAN M D

Hunt E. L. and Lisa J. R. Peptic and Duodenal Ulcer in Tabes Dorsalis. *J. Am. Med. Ass.* 193. xc. 95.

The authors report four cases of peptic and duodenal ulcer associated with tabes dorsalis which were seen in the City Hospital, New York. In only one was the ulcer diagnosed before autopsy.

In all four cases the typical findings of tabes were present. In three cases the Wassermann reaction was positive but in one case repeated tests of the blood and spinal fluid were negative. In one case there was a history of bloody vomitus.

In all of the cases syphilis of the heart and aorta was found at autopsy. In one case autopsy showed multiple chronic gastric ulcers with perforation of one of the lesions which had caused an acute general suppurative peritonitis. In one case in which a preoperative diagnosis was made and gastroenterostomy had been done a few days before death autopsy revealed a prepyloric ulcer and acute general peritonitis. In another case autopsy showed a bleeding duodenal ulcer that had filled the small and large intestines with blood. In the fourth case two duodenal ulcers with hæmorrhage were found.

In all of the cases microscopic examination showed the lesions to be simple ulcers and showed no evidence of either syphilis or malignancy.

The authors conclude that the occurrence of simple peptic and duodenal ulcers in tabes dorsalis is more frequent than has been suspected and that more careful attention should be given the abdominal symptoms in these advanced cases of syphilis.

L. EMMERT BOYKE M D

Goyena J. R. and Blanchi A. E. An Unusually Clinically Benign Gastric Tumor—Myxoid Schwannoma. (Sob. u. r. tumor gástr. i came t. b. g. o. schw. noma m. d.) *i. h. g. t. de f. m. d. ap. d. g. st. 93. 5.*

The case reported was that of a man fifty-four years of age who entered the hospital on account of recurrent gastric hæmorrhage. The patient had been a very heavy eater and smoked a great deal but did not use alcohol to excess. His illness had begun four months previously with the sudden vomiting of black blood. He went back to work but became so dizzy he was obliged to go to bed. After treatment for twenty days he was able to work for two months but at the end of that time he had a gastric hæmorrhage of red blood. He came to the hospital for fear of further hæmorrhage. He had lost 7 kgm in weight but was vigorous and had a good appetite. There was no history of syphilis.

Palpation disclosed slight pain on deep pressure in the epigastric region to the left of the midline immediately below the ribs. It revealed also a deep resistance but the nature of the latter could not be determined because the muscle became rigid on palpation. Blood examination showed changes which might have been due to the hæmorrhages. The gastric juice was hyperacid. Roentgen examination revealed a defect in the lesser curvature which suggested cancer but malignancy was ruled out by the flexibility of the stomach which indicated absence of infiltration around the tumor by the absence of pain on pressure and of spasmodic contractions by the peristalsis and mobility of the stomach which showed absence of perigastric adhesions and by the presence of the normal mucous membrane relief described by

Larsen Operation disclosed a tumor on the lesser curvature. An extensive wedge shaped resection was done. Recovery was uneventful.

A detailed histological description of the tumor is given with photomicrographs. The neoplasm proved to be a myxoid schwannoma, a tumor sometimes called myxosarcoma and sometimes myxoblastic sarcoma. AUDREY GOSS MORGAN M D

Wangensteen O H Acute Bowel Obstruction  
*Minnesota Med* 1931 xiv 16

The mortality of the surgical treatment of acute intestinal obstruction is as high today as it was forty years ago. It rises with the delay of treatment. Statistics show that it increases from zero in cases treated within six hours after the onset of the symptoms to 40 per cent in cases in which treatment is delayed for six days.

Experiments performed by the author did not indicate that the contents of the obstructed loop of bowel are any more toxic than the contents of the normal bowel. However if strangulation has occurred there is loss of vitality of the tissues involved and abnormal absorption takes place through the mesenteric vessels and from the serosa of the peritoneum. Studies of the blood reveal an increased combining power for carbon dioxide with a decrease of blood chlorides. The administration of normal salt solution will combat dehydration and prolong life. In strangulation the use of saline solution is of no particular advantage. In obstruction of the lower bowel there is no change in the chemical character of the blood.

Early diagnosis is difficult because at first there are no local findings. The development of such signs as meteorism, collapse and stercoraceous vomiting often means that the patient is beyond hope of cure by operation. Auscultation of the abdomen will reveal loud peristaltic rushes with a peculiar bubbling sound such as is produced when water is poured from a bottle. At times a metallic tinkle may be heard. The use of the enema may be misleading as gas and feces may be expelled from the distal bowel even when complete obstruction is present. The X ray is of aid in the diagnosis since in the cases of adults the visualization of gas in the small bowel is evidence of intestinal obstruction. The ladder pattern and the presence of fluid mirrors make the diagnosis certain. Auscultation of the abdomen will differentiate between mechanical obstruction and the silent abdomen of intestinal paralysis. Any patient with intermittent colicky pain in the abdomen which is not relieved by enemata should be carefully observed for intestinal obstruction.

Operation should be performed as soon as it is reasonably evident that obstruction exists. The surgeon should not wait to determine the location or character of the obstruction. If the patient's condition permits the ideal procedure consists in release of the obstruction, removal of the devitalized portion of bowel and intestinal anastomosis. In an urgent case strangulation of the bowel should be

treated by exteriorization if resection is not advisable. In some cases otherwise inoperable enterostomy of the bowel proximal to the obstruction is of great value. Jejunostomy is contra indicated on account of its mortality. WILLIAM J PICKETT M D

Bonorino Udaondo C Intestinal Obstruction  
Caused by Biliary Calculi (Obstrucción intestinal por cálculos biliares) *Rev Asoc med argent* 1930  
viii 217

Intestinal obstruction caused by biliary calculi appears to be more frequent in females than in males and most common after middle age. Of 230 cases reviewed by Wagner 73 were those of persons between the ages of fifty and fifty nine and 8 those of persons between the ages of sixty and sixty nine.

Calculi causing intestinal obstruction are usually ovoid. They vary in weight from 5 to 30 gm. Millward cited a case in which a calculus weighing 405 gm was found. There seems to be no relation between the size of the calculus and the gravity of the symptoms provoked by its migration. In 95 per cent of the cases the calculus enters the intestine through a fistula formed after a prolonged inflammatory process in the gall bladder has given rise to pericolic cystic changes fixing the diseased organ to the adjacent structures. In 143 cases reviewed by Courvoisier the fistula communicated most often with the upper portion of the duodenum and least often with the transverse colon. In 108 of the 145 cases reviewed by Hermann the obstruction occurred in the region of the ileocecal valve. This was the most common site also in the cases reviewed by Lesk and Wagner.

The mechanism of the obstruction consists in a local spasm which causes fixation of the foreign body. The symptoms depend on the intensity of the spasm more than on the size of the calculus. A calculus of enormous dimensions may go through the digestive tract without giving rise to symptoms. As the result of extensive lesions in the mucosa giving rise to paralytic ileus the spasm sometimes persists after elimination of the calculus. Around a fixed calculus the mucosa becomes inflamed and thickened and if the condition persists ulceration and necrosis take place with subsequent perforation and peritonitis.

The symptoms of intestinal obstruction due to biliary calculi depend in great measure on the site of the obstruction. When the obstruction occurs in the duodenum jejunum or proximal ileum they are usually acute whereas when the obstruction occurs in the terminal ileum or the colon they are usually subacute or chronic. The most constant early symptoms are constipation and diarrhea accompanied by abdominal pain which may be either of a colicky character or diffuse. Diarrhea is the predominating symptom when the occlusion is being formed but occurs even after the process is well advanced. At first it is intermittent but later becomes continuous. The pain varies in intensity. It is localized around the umbilicus and in the upper half of the abdomen. It is paroxysmal and is somewhat transmitted. It is



due to traction of the dilated loop on the mesentery. As a rule pressure ballooning occurs and hyperperistalsis is present above the obstruction. The meteorism may be of great aid in the diagnosis. It appears later in obstruction of the small intestine than in obstruction of the colon. The peristaltic waves although active do not reach extreme intensities. The distention due to gas is limited to the loops just above the stenosis. Von Vahl's sign, a local abdominal asymmetry due to the localized dilatation makes its appearance. Auscultation over this local dilatation reveals the presence of Wilm's sign, a peculiar metallic sound caused by the compression of liquids and gases above the obstruction and their displacement by hyperperistalsis.

In obstruction of the small intestine roentgen examination is of great importance. The author calls attention to the dangers of producing total obstruction by the administration of an opaque meal. Case has reported numerous instances in which chronic obstruction in the ileum was diagnosed by means of roentgenograms taken with the patient in the standing position. At times the loop just above the obstruction shows a large gas bubble suggesting an inflated stomach. Again a series of bubbles of air or air and water of irregular distribution are seen in the central abdominal region and give rise to the herring bone appearance first described by Case.

The condition develops suddenly with symptoms of grave ileus lasting several hours. There is then a quiet cent period of from one to twelve hours. This is followed by recurrence of the symptoms with fecal vomiting. The symptoms then subside again and for a time improvement is noted. The subsequent crisis which is less pronounced is sometimes accompanied by pain but not by vomiting. After an interruption which varies in length the symptoms of complete obstruction make their appearance.

When the obstruction occurs in the duodenum or the proximal ileum the prognosis is grave but when it occurs in the large intestine the prognosis is more favorable. According to the author's statistics the mortality ranges from 33 to 68 per cent. It is lowest when intervention is carried out early. The author recommends enterostomy in which the incision is made at a distance from the point of obstruction to avoid the necessity of repairing walls that are friable.

F. R. CASSELLAS, M.D.

Armour, J. C., Brown, T. G., Dunlop, D. M., Mitchell, T. C., and Othman. Studies on High Intestinal Obstruction. The Administration of Saline Solution and Other Substances by Enterostomy Below the Site of Obstruction. *B. J. Surg.* 93, 1, 467.

The cause of death in high intestinal obstruction is not definitely known. According to the oldest theory it is the absorption of a toxic substance formed above the site of the obstruction. Williams concluded that the toxin is formed in part at least by the bacillus welchii and found that he was able

to reduce the mortality from 24.8 to 9.3 per cent by the use of anti-gas gangrene serum. Whipple thought that a toxic protease is formed in the intestinal mucosa and is absorbed into the circulation from the lumen of the gut. According to a more recent theory the fatal termination is the result of a change in the chemical composition of the blood due particularly to the loss of chlorides and to dehydration and alkalosis. Haden and Orr have called attention to the effectiveness of saline solution in intestinal obstruction.

The authors report experiments carried out on dogs in which they attempted to determine whether by the administration of saline solution and energy-producing foodstuffs life could be sufficiently prolonged to eliminate the possibility of toxæmia as a cause of death and whether the bacterial growth above the obstruction is the source of a toxin.

They found that in the cases of untreated dogs death was preceded by the progressive development of severe alkalosis, gross lowering of the blood chlorides and finally an increase in the blood urea. For several days before death the urine was chloride free and the stomach contents contained no free hydrochloric acid although the total chloride content was normal. It was immaterial whether the bile and pancreatic juice entered the intestine above or below the obstruction but the time of survival was longer the lower the obstruction. When both chloride and water were administered below the obstruction the chemistry of the blood, urine and stomach contents remained normal and life was greatly prolonged. Death ensued only after about four weeks and could not be attributed directly to the obstruction. When peptone and carbohydrate were added to the chloride and water life was prolonged for seven weeks or longer. Withdrawal of the chloride then caused death with the usual clinical and chemical changes. There was no evidence that excessive breakdown of tissue protein is an essential accompaniment of high intestinal obstruction. The occurrence of bacillus welchii in the stomach contents was the same in the treated and untreated animals.

From the findings the authors conclude that death in intestinal obstruction is due not to toxæmia but to the chemical changes resulting from a loss of chloride and water. Therefore the treatment should consist in supplying chloride and water until continuity of the alimentary canal has been reestablished.

Miller, T. G. Duodenitis. A Review of Twenty Six Cases So Diagnosed. *Med. Clin. North Am.* 93, 2, 84.

None of the twenty-six cases reviewed by the author came to operation or autopsy but the diagnosis of duodenitis seemed justified by the clinical laboratory and roentgen findings.

Roentgen observations are placed first in importance among diagnostic criteria. A normal or fish hook type of stomach was found in twenty of the twenty-six cases, the steer horn type in three and

the ptotic type in three. Therefore in all but three cases the greater curvature was at or above the level of the iliac crests.

Gastric residue was present after a six hour period in only three cases. Peristalsis and motility observations corresponded with those in duodenal ulcer.

Pylorospasm was found more frequently in cases of duodenitis than in cases of duodenal ulcer but judging from the six hour emptying time is less persistent in the former.

Irregularity of the duodenal cap was demonstrable in every case but was not constant as in cases of ulcer. Ulcer can usually be eliminated on the basis of inconstant irregularity alone.

The roentgen characteristics of duodenitis seem to be irritability, non retention and inconstant irregularity, a group of phenomena uncommon in ulcer and adhesions.

Duodenal stasis was found to be rare. Colonic stasis which is so common in duodenal ulcer was even rarer in the cases of duodenitis than in the general group of cases in which roentgen studies of the digestive tract are made.

The duodenitis was most common between the twentieth and fiftieth years of age and was five times as frequent in males as in females.

The symptoms in most instances were those of gastric or duodenal ulcer. Their duration ranged from three weeks to ten years. Judd and others think the lesion is an independent entity for if it were merely a first stage in the development of ulcer it would develop into that lesion earlier.

The observations made on physical examination were of little value. The incidence of discovered focal infections was low. The gastric acidity varied. Duodenal drainage was essentially negative.

The response to the routine medical regime for ulcer corresponded to that of cases of ulcer and was therefore of no value in the differential diagnosis.

WILLIAM E. SHACKLETON, M.D.

Drennen E. Ileocecal Cysts. *Arch Surg* 1931 viii 106

Drennen states that cysts and diverticula of the intestines are different phases of the same process. They result from the growth of a bud or a prolongation of epithelium that has pushed out into the mesenchyme. If an opening into the intestine is formed a diverticulum results whereas if the bud becomes separated a cyst results. It is possible however that some cysts are formed in a different manner.

The pre operative diagnosis of ileocecal cysts can be at best only a guess. A movable tumor in the region of the cæcum is suggestive. These cysts are more frequent in children than in adults. The operation of choice is resection of the segment of intestine involved. In no case has enucleation of the cyst been successful.

A search of the literature revealed only twenty authentic ileocecal cysts. In a large percentage of the cases there were symptoms of acute or recurring

obstruction. In two cases there was a concomitant intussusception. Acute appendicitis was the pre operative diagnosis in at least three cases. The ages of the patients ranged from three days to twenty nine years.

The author adds three new cases. In all of them resection of a part of the bowel was done. There was one death that of a child two years of age who had an intussusception with symptoms for six days.

EARL O. LATIMER, M.D.

Dagnino A. Dolichocolon (Dolichocolias). *Semana med* 1930 xxxviii 1780 1891

Following a detailed review of the normal anatomy and physiology of the colon the author reports twenty six cases of dolichocolon supplementing the case histories with roentgenograms.

The condition may be segmental or total congenital or acquired. There may be no symptoms at all or there may be severe flatulence and pain. The condition may simulate organic diseases such as gastro duodenal ulcer and biliary lithiasis or may cause phantasmal tumors. It is of importance to demonstrate latent forms as they may be prevented from developing into the more severe forms. Roentgen examination is of value but the diagnosis cannot be made by this means alone.

In most cases medical orthopedic and physiotherapeutic treatment is indicated. Under such treatment the colon may become normal. Surgical treatment is necessary only for acute complications and in cases with troublesome symptoms that resist medical treatment. The treatment must be adapted to the requirements of the particular case but in general the intestine must be kept freely open. To prevent the formation of gas the cellulose content of the diet must be reduced. Charcoal or similar absorbents and anti spasmodics such as belladonna and papaverin should be given. Acid milks such as kefir and yogurt are good and vaccines may be given by mouth or by injection. The colon should be lubricated with liquid paraffin or some other oil. Sufficient liquid should be drunk and moderate exercise taken. Hydrotherapy and electrotherapy are beneficial. Decalcification should be prevented by the use of ultraviolet rays and the elimination of acid producing foods from the diet.

AUDREY COSS MORGAN, M.D.

Stewart M. J. and Hickman E. M. Observations on Melanosis Coli. *J Path & Bacteriol* 1931 x. xiv 61

In 600 autopsies the incidence of melanosis coli including the lighter forms was found to be 11.2 per cent. The condition has been discovered in persons poisoned by heavy metals but is most common in cases of severe chronic constipation and obstructive lesions particularly carcinoma of the colon. Of 2 series of cases of carcinoma of the colon melanosis was found in 48.8 and 55 per cent respectively. As a rule the pigmentation is most intense above the growth.

WILLIAM E. SHACKLETON, M.D.

Chutro P Postoperative Complications of Appendicitis (Complications postoperatives de la pendicite) *Scand J Surg Gynecol Obstet* 1932

The author is generally led to believe that appendectomy is a simple operation free from danger but as a matter of fact there are many complications. An average of various American and European statistics shows a mortality of 10 per cent. In some hospitals the mortality runs as high as 16 per cent and in some as low as 5 per cent. The fact that mortality is increasing may perhaps be explained by the assumption that the disease has become so well known that people do not fear it and allow themselves to be operated on by incompetent surgeons. In the United States the report of the Bureau of Vital Statistics shows that there were 25,000 deaths from appendicitis in 1928.

The author divides the complications into two groups—those of chronic interval and early acute appendicitis and those of the suppurating gangrenous and perforative types. While the operative technique may be responsible for many of the complications in the first group the disease itself is responsible for those in the second group.

Among the complications in the first group are those due to the use of an anesthetic. Gas gangrene or a colon bacillus phlegmon may result from a condition present at the time of the operation, the development of which was not prevented by the operation even though the latter was performed with a faultless technique. A reaction of the glands at the ileocecal flexure has been seen. As a rule this is found in cases with discrete tuberculosis of the peritoneum. Abscesses may form in the wound around bits of suture material and phlegmons may develop in the abdominal wall from direct contamination of the subcutaneous cellular tissue or from a hematoma. Intraperitoneal complications may be caused by perforation of the cecum by the needle by loosening of the ligature by partial or total disinvagination of the stump by the incarceration of a bit of the wall of the cecum in the invaginating suture and by too drastic punctions causing exaggerated movements of the intestine and loosening of the sutures. Peritonitis from any of these causes is usually fatal. Intraperitoneal hemorrhage may result from insufficient ligation of the meso-appendix and in transrectal operations from injury of the epigastric artery. Occasionally an early or interval appendicitis is complicated by paralytic ileus. Most of the emboli that occur in early appendectomy are harmless. Early appendectomy may be followed by the formation of adhesive bands which cause chronic obstruction or by pain due to inclusion of a nerve in the abdominal wound. Adhesive bands may be shown by roentgen examination but their section does not always relieve the symptoms.

In cases of suppurative perforated or gangrenous appendicitis some form of complication occurs after operation in 60 per cent of the cases. The possible complications are peritonitis phlegmon and sup-

puration of the abdominal wall pyelophlebitis deep cellulitis evisceration ileus perforation of the intestine with fecal fistula subphrenic abscess epiploitis secondary hemorrhage embolism phlebitis respiratory complications parotitis enteritis in sufficiency of the liver and acute dilatation of the stomach. The treatment of each is discussed.

AUDREY GOSS MORGAN M.D.

Bensaude R, Cain A and Lambing A. Villous Tumors of the Rectum (Les tumeurs villoses du rectum). *P. s. med.* 1930 xxx 73.

The histological character of villous tumors of the rectum is disputed. By some these neoplasms are considered adenomata distinguished only by a villous covering by others as cancers and by a third group as superficial slowly growing neoformations intermediate between benign and malignant tumors. In the authors' opinion they are distinct from ordinary adenomata of the rectum and epitheliomata.

Of the authors' fifty-nine cases 95 per cent were those of persons more than forty years of age. The growth of the tumor is slow. In the case of a man aged forty-eight years there was a history of slight bleeding after defecation since the age of four and in three cases such bleeding had occurred for from six to eight years. Bleeding occurs in 75 per cent of the cases. Constipation is not at all constant. As a rule there is a sensation of weight and of a foreign body in the rectum especially after defecation. The patient may tell of passing fragments of tumor for years of occasional prolapse of the tumor on defecation and of a glairy mucoid discharge. Association of the tumor with hemorrhoids is confusing. To be emphasized are the chronicity, the danger of malignant degeneration and the tendency to recur after inadequate surgery. In 80 per cent of the cases the tumor is from 6 to 12 cm. from the anus. A pedicle or lobules or a gelatinous plaque is felt. The tumor is movable and the surrounding mucosa is soft. Proctoscopic examination reveals a pink or glairy white mass with villi which stand out distinctly or are agglutinated by a glairy secretion.

After the onset of malignancy the tumor contains firmer zones which on pressure communicate their resistance to the mucosa. On proctoscopic examination the villi and glairy mucus are less apparent and the discharge on trauma is bloody or serohemorrhagic.

Biopsy specimens from the hard zones disclose malignant change in 45 per cent of the cases. In sections of the benign tumor the normal mucosa changes abruptly to exaggerated villi. The submucosa below a sessile tumor is little thicker than the submucosa below normal mucous membrane. The tumor is limited to the mucosa. Sometimes mucous glands appear in the tumor as glairy areas. In the early stages of malignancy no mucous cells are found but the sections show a transition to lightly stained cylindrical cuboidal cells. In the later stages there are irregular villi with stratified epithelium budding into the axes of a villus. Infiltration of

the muscularis mucosæ may occur later than metastasis. In the differential diagnosis it must be borne in mind that the adenoma proliferates not at the apices of villi but in the depths of pockets. Certain glandular epitheliomata wrongly called villous epitheliomata are merely villi growing on an old adenoma. The dendritic epithelioma which is malignant at the outset is rare, contains no glands, rests in a depression of the muscularis mucosæ and is strikingly irregular. Polyps which are rare in adults have a smooth surface.

The treatment includes radium and roentgen ray irradiation and excision. The choice of treatment must be based on the size, site and malignancy of the tumor and the patient's general condition. In eighteen surgically treated cases reviewed by the authors the routes of approach were the rectal, the perineal, the abdominal and the abdominoperineal. The rectal route was used in 75 per cent. The rectal route may be employed only when the tumor is situated close to the anus and adequate rectal dilatation is obtained under spinal anesthesia. The blood vessels should be ligated individually and a ring of normal mucous membrane about the tumor should be excised. A high anterior tumor may be associated with a true hydrocele of the pouch of Douglas.

In the fifteen cases in which operation could be properly carried out there were two recurrences—one after a year and one after eleven years.

The histological findings are shown in ten photomicrographs and the protoscopic findings in six colored plates.

CURTIS NELSON, M.D.

**Gordon Watson, Sir G. How Far Can Radium Replace Radical Surgery for Cancer of the Rectum?** *Ann. Surg.* 1937 xciii 467

The author has used radium implants in the treatment of twenty-seven operable cases of adenocarcinoma of the rectum localized below the peritoneal reflexion. No five-year statistics are available as yet. In six cases an apparent cure for periods ranging from one year to two and one-half years has been obtained, but the results to date are too uncertain to justify the use of radium irradiation in preference to operation unless surgery is refused or contraindicated.

In cases of high growths of the rectum the danger of operation by the abdominoperineal route is considerable. Therefore unless the patient is regarded as an exceptionally good operative risk and the growth is in a sufficiently early stage to warrant the assumption that there will be little danger from recurrence after operation, the use of radium is justifiable. Gordon Watson has used transperitoneal abdominal irradiation with needles and seeds in such cases.

Squamous carcinoma of the anus is best treated with radium applied interstitially and on the surface of the growth. This treatment may preserve the function of the sphincter whereas operative treatment destroys it.

C. D. HAAGENSEN, M.D.

## LIVER GALL BLADDER PANCREAS AND SPLEEN

**Santy P. and Mallet Guy P. Cholecystostomy and Gall Bladder Stasis. The Alternating Excretion of Bile and Mucus (Cholécystostomie et vésicules de stase à excréation alternante de bile et de mucus).** *Lyon chir.* 1930 xxvii 750

The operation of choice for gall bladder syndromes resembling lithiasis and commonly called gall bladder stasis is cholecystostomy. This procedure allows later operations and yields findings which throw light on the pathogenesis of the syndrome. The authors report ten cases in which it was noted that at a certain time the biliary flow became colorless and purely mucous. Mucus and bile alternated, the mucus appearing usually at night.

During the first day after cholecystostomy the bile flowing to the exterior retains the characteristics of Bile B. Then it gradually clears up, changing from a greenish brown viscid substance to a clear golden yellow fluid, i.e. it takes on the characteristics of hepatic bile. Cholecystostomy evidently puts the gall bladder at rest since the function of resorption in this organ, which makes of gall bladder bile the characteristic bile called Bile B, has ceased to operate. This is indicated also by the fact that pain present before the operation ceases when the gall bladder is fixed to the skin. It is probable that besides the gall bladder muscle the gall bladder mucosa is also placed at rest.

Graphs have shown that the curve of fistular flow is irregular but oscillates around a characteristic average level for each patient. When the biliary tract is perfectly normal the gall bladder fixed to the skin excretes daily only from 30 to 40 c.c. of bile. An excess of bile in the principal tract with biliary hypertension may be related to the excess formation of bile of hemolytic icterus or more frequently to an obstruction in the common duct. The cutaneous orifice plays the role of escape valve. The authors have observed cases in which cholecystostomy performed for biliary retention was followed for eight days by a daily flow of from 650 to 750 c.c.

The second factor in the increase of the output from the stoma seems to be an abnormal abundance of the mucus secretion of the gall bladder indicated by the alternating flow of bile and mucus.

In order to study the intermittent flow more carefully the authors collect the twenty-four hour output in a series of eight test tubes attached to each other by adhesive tape. Every three hours when the gall bladder drain is changed the excreted liquid is collected in a fresh tube. When the postoperative flow is biliary only the examination of eight tubes shows great differences at different hours of the day, the digestive periods coinciding with a marked diminution or even cessation of the flow. It is during these hours when the bile passes completely into the duodenum that the flow of mucus appears in some of the patients operated upon. The amount of the mucus flow is very variable.

This alternating flow of bile and mucus is not noted when the biliary tract is normal. A late intermittent flow of mucus beginning from the fifteenth to twentieth day and amounting to only a few cubic centimeters is secondary to a mild reaction of the gall bladder mucosa. When the mucobiliary dissociation occurs early the flow of Bile B ceasing before the end of the first week, at the time that feeding is resumed and the white liquid is abundant amounting to from 10 to 20 c cm in three hours there is a manifest hypersecretion of mucus.

The authors conclude that they have demonstrated the occurrence of gall bladder stasis from the excessive formation of mucus. They believe that as a rule it is impossible to make the diagnosis clinically. Once however they were able to diagnose the condition by cholecystography. Cholecystostomy assures cure.

PAGE

## MISCELLANEOUS

Doeherty W D and R wlands R P Subphrenic  
Abscess B I M J 1932 1 168

The authors review forty nine cases of subphrenic abscess and report six of them briefly. Seventy three per cent of the abscesses occurred on the right side. The majority of the patients were males.

In order of decreasing frequency of occurrence the causes of the abscesses were perforated gastric and duodenal ulcers, acute appendicitis, blood borne infections, acute cholecystitis and carcinoma of the stomach and colon.

The suppuration is associated with remittent or intermittent fever with or without rigors and with abnormal physical signs at the base of the chest. A

subphrenic abscess should be suspected when these findings follow a known infection such as recent appendicitis or the perforation of a gastric or duodenal ulcer. The most constant local sign in the cases reviewed was dullness over the lower part of the chest. The upper limit of the dullness was often dome shaped. While pulmonary signs may be absent at first they develop later as the result of spread of the congestion and inflammation to the pleura and lungs. Leucocytosis is an important and almost constant sign.

Röntgen examination is invaluable in the diagnosis. In the cases reviewed the characteristic local elevation and fixation of the dome of the diaphragm was often found. In some cases a collection of gas above the pus was shown in the roentgenogram. For confirmation of the diagnosis reliance was usually placed on an attempt at aspiration with a long exploratory needle. However in eleven of eighteen cases in which this was tried by Barnard it failed. For grave cases in which the diagnosis is uncertain or the location of the abscess is not definitely determined the authors advocate exploration through a small incision in the epigastrium. If an abscess is discovered it may then be safely and quickly drained below the pleural reflexion and extrapleurally. The grave risks of pneumothorax, empyema and peritonitis being thus avoided.

Anterior abscesses may be drained through an incision below the costal margin but in some cases a counterincision in the loin is necessary. Posterior abscesses may be drained through the thorax by a subpleural or transpleural route. To prevent pulmonary complications the authors employ the posterior subpleural approach.

ROBERT ZOLLAGE MD

# GYNECOLOGY

## UTERUS

Reeb Cystic Adenoma of the Cervix (Adénome kystique du col utérin) *Bull Soc d'obst et de gynec de Par* 1930 xiv 673

Reeb reports a case of cystic adenoma of the cervix in a woman forty nine years of age who sought treatment for menorrhagia of about four weeks duration. In addition to a large adenomatous goiter associated with tachycardia and hypertension examination revealed a round elevated area measuring about 5 cm on the anterior and lateral aspect of the cervical canal about 1 1/2 cm above the external os. This area which was dark red was firm but not indurated. Its surface was slightly mammillated. Its borders were smooth and regular and not everted. The small irregularities on its surface about the size of a pinhead were somewhat lighter in color. There was no bleeding on manipulation the blood which presented at the external os emanating from the uterine cavity.

Microscopic examination of a biopsy specimen revealed a marked glandular proliferation with adenoma formation. The glands were for the most part dilated and cystic and lined by a single layered low cuboidal epithelium showing no mitotic figures. The adjoining cervical glands were entirely normal. There was no leucocytic infiltration.

Hysterectomy was performed although the growth was evidently benign. The patient died five days after the operation from cardiac failure due to the thyroid condition.

Inspection of the uterus after the operation revealed a uterine polyp and several fibroid nodules. There was a distinct though irregular line of demarcation between the adenoma and the uterine musculature. Further microscopic studies failed to disclose any evidence of malignant degeneration. Mucicarmine stains gave the typical mucin reaction demonstrating that the growth was derived from cervical gland epithelium.

The adenomatous proliferation was more marked than in the cases reported in the literature and the glands communicated or were grouped in islands whereas in the cases previously reported there was merely a glandular hyperplasia disseminated in the connective tissue and showing no communication of the glands. The adenoma resembled somewhat the adenoma of Gaertner's duct described recently by Meyer but could be distinguished from the latter by the positive mucin reaction which is absent in adenoma of Gaertner's duct because the epithelium of Gaertner's duct does not secrete mucus.

Cystic adenomata of the cervix are not infrequent but they are seldom described in textbooks and are usually confused clinically with nabothian cysts.

While these adenomata rarely become malignant Reeb emphasizes the importance of differentiating them from carcinoma. He calls attention to the fact that the adenoma is firm and elastic but not indurated. Its borders are regular and are not everted like those of carcinoma. It is dark red whereas carcinoma is yellowish. The adenoma does not bleed readily upon manipulation. As biopsy will not prove the absence of malignant degeneration in all parts of the growth Reeb advises extirpation in every case.

HAROLD C. MACK M.D.

Freedman N. Age Period Changes in the Cervix Uteri with Special Reference to Cancer Development. *Am J Obst & Gynec* 1931 xvi 1

From a microscopic examination of 124 cervixes most of which showed cervicitis (24 obtained at autopsy and 100 at operation) the author draws the following conclusions:

- 1 The cervix is a restless organ with its tissue components continually in a state of imbalance.
- 2 At all age periods there is a remarkable interchangeability of the two types of lining epithelium.
- 3 From the very beginning during the fetal period there is no fixed union of the two epithelia at the external os one may overlie the other.
- 4 At labor the cervix is especially prone to develop an endocervicitis as the result of cervical lacerations.
- 5 The restlessness of the cervical epithelia makes endocervicitis of great significance because of the metaplasias of the columnar lining and excessive downgrowth and thickening of the squamous epithelium which follow.
- 6 Many of the results of endocervicitis represent a precancerous stage which need not necessarily develop into true cancer. For this stage the term carcinoid suggested by Borst is preferable.
- 7 The regressive hyperplasias in senility must be carefully studied with the possibility of a precancerous or a dysontogenetic condition in mind.
- 8 In the prophylaxis of cancer of the cervix cervical lacerations should be quickly repaired. In suspicious cases the local histological examination should be supplemented by the clinical records. Surgery is indicated if the precancerous stage is greatly aggravated and true cancer seems imminent.

E. L. CORNELL M.D.

Pinsan J. R. The Question of the Development of Cancer in the Cervical Stump After Subtotal Hysterectomy (La question de la cancérisation du moignon cervical après hystérectomie subtotale). *Rev franc de gynec et d'obst* 1930 xxv 688.

The author reports five cases of cancer developing in the cervical stump after subtotal hysterectomy.

In a review of the literature he found a wide divergence of opinion as to the frequency of this condition its reported incidence ranging from 0.40 per cent (Sanders) to 6.5 per cent (Lincoln). American statistics tend to show the highest incidence. Pinsan believes the incidence does not exceed 1 per cent. He attributes the difference of opinion regarding it to incorrect interpretation of statistical data and failure to recognize a co-existing cervical cancer at the time of operation for fibroids. The time of the occurrence of a cancer of the stump is an important factor since a cancer appearing within a few months after operation can hardly be said to have developed completely within that period of time. Also of importance in determining whether the cervical neoplasm represents an entirely different process from the tumor of the uterus or a *metastasis* are its histological characteristics. With regard to the incorrect interpretation of statistics Pinsan says that some gynecologists have based their conclusions on the general incidence of cervical carcinoma in all cases coming for treatment instead of only on cases in which the carcinoma developed after hysterectomy.

Pinsan doubts the efficacy of total hysterectomy as a prophylactic measure since carcinoma has been known to develop in the vaginal stump. Operations which come out the cervical canal leave behind a portion of cervix with poor drainage and impaired circulation factors which in themselves may favor the development of cancer. Moreover the mortality of total hysterectomy renders its routine use inadvisable as a prophylactic procedure.

For the treatment of carcinoma of the stump radical amputation is to be preferred to radical operation.

HAROLD C. MACK M.D.

#### Whitehouse B. Uterine Hemorrhage with Special Reference to Malignant Disease. *Lancet* 1931

The author states that the symptoms of cancer of the uterus are often so trivial that they are regarded as purely physiological phenomena. To explain the tendency of the uterus to bleed irregularly and excessively at the time if the menopause he reviews the physiology of menstruation. Among the causes of postmenopausal hemorrhage are:

1. Late ovulation. The author saw a recent corpus luteum in the ovary of a woman sixty seven years of age which was removed with the uterus because of postmenopausal bleeding.

Adenomatous mucous polypus of the endometrium. This may occur at any age after puberty. Endometrial polyps and hyperplasia are associated with a local intrauterine tension. In cases of fibroids chronic subinvolution and fibrosis the uterine cavity is increased in all dimensions the intrauterine tension being therefore increased.

Four types of uterine hemorrhage which may occur during or after the menopause in association with uterine carcinoma are:

1. Epimenorrhoea or too frequent menstruation. This irregularity is intensified in some cases because

oestrus and ovulation do not synchronize as under normal conditions.

2. Menorrhagia or excessive menstruation. This is usually associated with fibrosis of the uterus.

3. Menostasis or prolonged menstruation. This is probably associated with the pressure of dead and immature ova in the ovary (fibrocystic ovaries) and partly with local abnormalities of the endometrium.

4. Metrorrhaxis or haemorrhage unassociated with menstrual factors. The most important form of bleeding in this group is that associated with coitus.

In conclusion the author says that the definite exclusion of a malignant tumor of the uterus in the presence of abnormal uterine bleeding requires a pelvic examination and often curettage.

HARRY M. LISO M.D.

#### Bonney V. The Technique and Results of Myomectomy. *Lancet* 1931 cxxx 171

The author believes that cases of fibroids beyond the scope of conservative surgery are uncommon. While he does not claim that myomectomy is the operation of choice in the majority of cases he believes that it should be chosen in preference to radical operation in most cases of women under forty-one years of age.

Bonney has performed myomectomy 403 times. The tumors were solitary in 166 cases and multiple in 237. The number removed in a single case has varied from 15 to 125. Bonney has performed multiple myomectomy in cases in which the total mass was the size of a full term pregnancy.

The operative mortality was 1.7 per cent—about the same as that of hysterectomy performed by experts. In 3 per cent of the author's cases hysterectomy was necessitated subsequently by new fibroids, menorrhagia or some other condition.

Of the women of child bearing age who were subjected to myomectomy 39 per cent became pregnant after the operation. Seventy-five per cent of the infants of these women were born naturally.

Hemostasis is of great importance in myomectomy. The author has designed a clamp which compresses both uterine arteries at once so that when a ring forceps is placed on each ovarian pelvic ligament all of the 4 main arteries of the uterus are blocked and the operation can be carried out in an almost bloodless field.

The author usually explores the uterine cavity through a single median incision in its anterior wall and removes the fibroids through the posterior wall. In some cases however he makes the primary incision in the posterior wall. Occasionally he performs the Hood operation.

HARRY M. NELSON M.D.

#### ADNEXAL AND PERIUTERINE CONDITIONS

Stieve H. Studies on the Human Ovary (Beobachtungen an menschlichen Eierstöcken). *Arch. f. g. u. n. B.* 1931 39: 391.

The author lays great stress upon the necessity of examining the entire ovary in serial sections in order

to understand the behavior of the organ as a whole even though its individual processes are known

The ovaries from a girl fourteen and a half years of age who had not yet reached puberty exhibited only a few developing vesicular folliculi up to 1.5 mm in size most of which showed degeneration

Of eight young women and girls ranging in age from fifteen to nineteen years who had had regular menstrual periods (among them five virgins) all had rather large ovaries weighing from 7.6 to 9.3 gm with a corpus luteum in the stage of development agreeing with the cyclic stage of the tubes and uterine mucosa. All of the ovaries exhibited a sparse stroma a well preserved superficial epithelium an external layer from 20 to 30 micra in thickness and a zone 150 micra thick which was made up of small spindle shaped cells in a network of very fine collagen fibrils. The cortex which was from 300 to 800 micra in thickness contained numerous developing and small vesicular follicles in addition to primary follicles. Connective tissue could be clearly demonstrated only by treatment first with silver salts and then with gold salts

In the deeper layers numerous follicles ranging up to 7 and 8 mm in diameter were found among the atretic follicles and the residua of corpora lutea. In nearly all of these there was absence of evidence of degeneration the cumulus oophorus was well preserved and the ova were newly formed. The ova were smaller in the larger follicles

However in every section particularly about the corpora lutea there were follicles in the process of degeneration which began regularly with degeneration of the ova. Steve regards the theca cells as derivatives of the histiocytes and states that with the atresia of the follicle most of the theca cells revert to histiocytes. After degeneration of the stratum granulosum the hyaloid stratum develops. In man the degenerating theca cell never plays the role of an interstitial gland. As more follicles become atretic and more corpora lutea degenerate more connective tissue develops to replace them the connective tissue therefore increases with age

In young girls a large number of normal vesicular follicles is not pathological. Since the term cystic implies disease the term microcystic degeneration is usually inappropriate. In true cysts no normal ovum or granulosa is present. Sometimes a true small cystic degeneration occurs as in the case of a woman twenty years of age who had a rudimentary solid bicornate uterus and quite markedly enlarged ovaries. The well known behavior of such ovaries without normal function is attributed by Steve to the influence of the abnormal tubes and uterus

During pregnancy the behavior of the ovaries varies with the individual. At the end of pregnancy corpora lutea are not found as a rule but there are a large number of structures which may be the remains of corpora lutea instead of atretic follicles. Steve has frequently found two or more corpora lutea at the end of pregnancy but only once did he find any in the second month of pregnancy. As long as the

corpus luteum is preserved in pregnancy an unusually marked degeneration of follicles is noted in both ovaries and there are few or no developing follicles or corpora albicantia. The primary follicles remain unaltered. Occasionally the corpus luteum degenerates as early as the fifth month. Proliferation of the theca cells may not occur. When the corpus luteum is absent a much larger number of small vesicular and cystic atretic folliculi of the usual structure develop during pregnancy. In two cases Steve found at the end of pregnancy large vesicular folliculi as well as the smaller types all with cumuli oophori but no corpora lutea. The conclusion to be drawn from these findings is that the formation of new normal follicles is prevented by the corpus luteum and can take place only in its absence. For this reason menstruation may appear as early as the third week of the puerperium. In the gynecological clinic at Halle there was a woman who began to menstruate between the twentieth and twenty second day of the puerperium after each of her five pregnancies. The individual differences are dependent upon constitutional and therefore unknown factors

The article is supplemented with illustrations  
ROBERT MEYER (G)

Meyer R. A Contribution on the Question of the Function of Tumors of the Ovaries. Especially Those That Lead to Defeminization and Masculinization. Arrhenoblastomata (Beitrag zur Frage der Funktion von Tumoren der Ovarien insbesondere solcher der zur Entweiblichung und zur Vermaennlichung fuehren. A henoblastome). *Zeitschrift f. Gynaek.* 1930 p. 2374

The author urges all gynecologists to observe the symptoms which are produced by ovarian tumors

Granulosa cell tumors have the same hormonal effect upon the endometrium as follicular cysts that is they produce hypertrophy of the uterus. In so-called precocious menstruation resulting from ovarian tumors it should be determined whether the bleeding is functional

Dysgerminomata (large cell solid carcinomata) occur in young persons in some cases in association with hypoplastic genitals and aplastic gonad and in others with hermaphroditism. The menses are often absent in mature womanhood. The author brings up the question whether or not the mucosa has a function. Up to the present time nothing is known with regard to a hormonal function of these tumors

Arrhenoblastomata are tumors leading to masculinization or defeminization. These neoplasms are of two types the adenoma tubulare testiculare (Pick) and the solid very atypical epithelial tumor. They are markedly different morphologically but alike functionally and belong together formally genetically. As evidence the author cites four cases which showed transition pictures and belonged at one time more to the first and at another time more to the second group. This intermediate position is also manifested functionally by greater or lesser



signs of defeminization and only in some cases by signs of masculinization (deep voice or virile hirsuties). The author designates these tumors as arrhenoblastomata or andrioblastomata (masculinizing tumors or tumor tissue of a male character). Clinical signs of masculinization are often entirely absent in cases of tubular adenomata but frequently the signs of the defeminization and the masculinization are not noticed by the clinician.

In order to learn more about the nature of these tumors and to study their hormonal effects every case should be carefully reported. Only collective investigation can make advancement possible. The author reports two cases.

The first of Meyer's cases was that of a woman aged thirty-one years who had had regular menstrual periods since her fourteenth year of life. She gave birth to a child at the age of twenty-one and had had no abortions. At the age of twenty-three the menstrual periods became irregular and at twenty-five they ceased entirely. Since then there had been castration symptoms but the patient appeared to be in good health. On examination the uterus was found to be small and atrophic. To the right and behind it there was a tensely elastic tumor the size of an apple. The tumor was removed by laparotomy. The menstrual periods occurred from eight to ten weeks after the operation and have persisted regularly for the past seven years. The microscopic structure of the tumor is described and shown in photomicrographs.

The second case reported was that of a woman aged thirty-six years who gave a history of an increase in menstruation for the past half year. The flow lasted up to fourteen days. Salpingo-oophorectomy on the right side was done in 1921. When the patient was seen again in 1930 she was in good general condition and her menstrual periods were normal but her facial expression was somewhat masculine and she had a deep male voice. The structure of the tumor in this case also is described and shown by photomicrographs.

Although the tumors found in these two cases differed morphologically they showed certain resemblances to those found in cases observed heretofore. The author classifies them with the intermediate group of a rhenoblastomata. The endocrine effect consists first in irregular menstrual periods and later in persistent amenorrhea. Meyer attributes this effect to the presence of the specifically male directed germinal epithelium. The male germinal epithelium of the male in short the testis has no corresponding effect upon the anterior lobe of the pituitary gland since according to Zondek and Aschheim its implantation and the injection of its extracts cause the ovaries of experimental animals to function. Therefore it is not likely that the masculinizing incision of the tumors described causes an immediate functional disturbance of the female pituitary gland. However it is possible that the masculinizing incision of the tumors makes the normally produced hormone of the anterior lobe of

the pituitary gland ineffective through other gland the blood or the ovary. H. O. NEUMANN (G).

## EXTERNAL GENITALIA

Turenne A. Congenital Absence of the Vagina  
(Sus c c g n i a d v a g a) An f d m d  
Un d M l e e d 1930 xv 725

The case reported was that of a patient twenty-five years of age with congenital absence of the vagina and very probably of the internal genital organs. Operation was performed by the method of Frank and Geist. A flap was cut from the inner surface of the thigh and its inner borders were sutured together to form a cylinder. The base of the cylinder was left connected with the rest of the skin to maintain the blood supply. A cavity was then formed by cleavage of the rectovesical space and the cylinder sectioned longitudinally and inverted so that the bleeding surface was external. The cylinder was then introduced into the newly formed cavity and the outer borders were sutured.

The advantage of this method is that it can be performed in several stages so that the vitality of the flap is assured at all times.

In the case reported the plastic and functional result was perfect. Twenty months after the operation no evidence of cicatricial atresia of the vagina was found. AUDREY GOSS MORGAN M D

## MISCELLANEOUS

Ronsi valle A. Histological Changes in the Thymus of Prepubescent Rabbits. Treat d with N n Specific Pregnancy Hormone. An Experimental Study of the Relations Between the Thymus and the Genital Organ. (L m d s a z o n i t l o g e d e l t m o d c o n g i m p b e n t i t e e n m o n e a v d o a p e f. Cont b to p e i m e n t a l l a c o c n a d l e c o e l a z o n i t m g a t l i) i c k d i t g a c 193 xxx 643

The author treated different lots of rabbits that had not yet reached puberty with the total urine of pregnant females. The urine of pregnant females deprived of its content of hormone of the anterior lobe of the hypophysis, human placenta and the urine of an adult man. All of the animals showed regression of the thymus. In the groups treated with the urine of pregnant females and placenta this was particularly marked and puberty was premature. The author describes some special changes in the interstitial cells of the thymus in the most advanced stage of regression and shows them with photomicrographs. AUDREY GOSS MORGAN M D

Melton J and Haou J. Remote Results of Intercurrent Nerve in the Sympathetic Plicula by the P. cervical Nerve in Gynecology. (Réult. de l'g f s d s l t e v t o s u l e s y m p a t h i q u e e g y e l o g e e f p e c e n p r i u l e) G) d e l b s t 193 xv 417

The earliest sympathetic intervention reported by the author was done six years ago. In this article

eighteen such operations are added to the ten previously published. The twenty-eight cases are summarized. In the first cases the authors performed a hypogastric perianterial sympathectomy. In later cases they did a resection of the presacral nerve. At the present time they operate on the pelvic sympathetic a procedure which is practically the Cotte operation.

They use the Pfannenstiel incision. When the inferior bifurcation of the nerve in the shape of an L is seen, one can be certain that the resection will be successful. In cases in which the nerve is not perceived when the peritoneum is opened, it should be sought superficially rather than against the osseous layer. The nerve adheres to the deep surface of the peritoneum just as the ureter adheres to the deep surface of the posterior leaf of the broad ligament. The operation is completed by ligament fixation to prevent later retraction of the uterosacral ligaments with consequent uterine retroversion.

In tabulating their results, the authors exclude eight cases. Of the twenty others, the operation gave good or excellent results in seventeen (85 per cent) and was unsuccessful in 3 (15 per cent). The indication for the operation was pain, usually rebellious dysmenorrhœa. Several patients presented a syndrome of excitation of the hypogastric ganglion—acute paroxysmal menstrual pain accompanied

by reaction phenomena in the bladder and rectum and often remote reflexes resulting in nausea, vomiting and diarrhœa. Less frequent was a more chronic pelvic neuralgia of vague localization. As a rule, medical, physiotherapeutic and climatic treatments were inefficacious and gynecological examination was negative.

In the seventeen cases in which the operation was successful, the pain was abolished, the periods were regularized and the general condition was improved. Subsequent pregnancy and labor (two cases) were not disturbed.

The operation is indicated for pelvic pain from inoperable or recurrent neoplasms, dysmenorrhœa and pelvic neuralgias. When in cases of dysmenorrhœa or pelvic neuralgia, laparotomy reveals a lesion undiscovered at clinical examination, such as an adenomyoma of a uterine cornu, a hæmangioma of the ovary or a sclerocystic ovary, conservative operation for this lesion should be supplemented by the sympathetic operation. Resection of the presacral nerve should be tried also for sensory motor or trophic disturbances associated with pruritus ani or vulvæ, kraurosis vulvæ or vaginismus. In such conditions it has succeeded when all other treatments have failed.

The article has a hysthography of thirty-six references.

PAGE

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Oxley W H F The Role of the General Practitioner in Antenatal Work *Br J W J* 1931 15

The author describes in considerable detail the antenatal work carried out in some of the counties of England. He maintains that the midwife has a definite place in obstetrics if she is sufficiently trained to recognize abnormalities and is willing to call the general practitioner in consultation when necessary. He believes that close co-operation between the midwife and the general practitioner will lower maternal mortality.

He describes principles of antenatal care in heart disease, vaginitis, cervicitis, ptychoccephalus and syphilis, and urges that malpositions be dealt with early. He advocates the use of Bristow's binder in occiput posterior positions and an attempt at external version in breech positions.

He emphasizes the importance of recognizing, contracted pelvis early. When the diagonal diameter measures 4 in, it induces labor at the thirty-six week by Krause's method. He states that caesarean section is as necessary for contracted pelvis only once in 10,376 cases. HARRY M NELSON M.D.

Peckham C H A Statistical Study of Placenta Previa at the Johns Hopkins Hospital *Am J Obst & Gyn* 1931 139

The incidence of placenta previa is about 1 case in every 50 deliveries. It is higher in white women than in colored women.

The maternal mortality in placenta previa is still high (8.64 per cent) although it has been greatly reduced in the past thirty-five years. It could be decreased still further by the prompt hospitalization of all cases with bleeding and the more frequent use of transfusion.

In cases in which the patient is admitted to the hospital in good condition with a low pulse and before the hemorrhage has become alarming, the mortality is low and does not rise if a number of hours elapse before delivery occurs. The mortality is highest in those in which delivery occurs before a poor general condition can be improved by intravenous therapy.

The incidence of premature labor is high but the maternal mortality is more than 3 times as high when delivery occurs at or near term.

About 15 per cent of cases of placenta previa are those of primiparae. The incidence of central placenta previa in this group is 10.7 (9.1 per cent). The maternal mortality is much higher in multiparae and increases with age.

Puerperal infection occurred in over half of the cases reviewed but caused death in only 1.

Hæmorrhage was responsible for 13 of the 16 deaths in the series. Several of the women were almost moribund when they entered the hospital. If the deaths of these women and the deaths from causes unrelated to placenta previa are subtracted, the mortality falls to 5.80 per cent.

The prognosis for the child is grave. In about half of the cases the child weighed less than 2.50 gm at birth and in more than 25 per cent the fetal heart beat could not be noted on the patient's admission to the hospital. Even when these 2 groups are subtracted, the fetal mortality (stillbirths and deaths occurring soon after birth) was very high viz. 38.71 per cent.

The treatment of placenta previa is still unsatisfactory. The mortality is best reduced by liberal transfusion. In the marginal type of case the use of the hygrostatic bag gives good results. While the indiscriminate use of caesarean section might increase the chances for the child, it would probably not reduce the maternal mortality. Many of the patients who succumb are too ill or are bleeding too severely when admitted to the hospital to permit laparotomy. In the cases of others caesarean section without subsequent hysterectomy would be associated with considerable danger because of the presence of infection from unsterile examinations or the use of vaginal packs before the patient's admission to the hospital. If ever caesarean section may be indicated in the cases of women with central placenta previa who are admitted in good condition before or early in labor and with a living and viable child and in cases in which the desire for a child counterbalances any increased risk to the mother.

E. L. CORRIE M.D.

Durante and Lemeland A Benign Placental Tumor (Tumeur bénigne du placenta) *Gynéc* 1931 1022

Durante and Lemeland report a benign placental neoplasm which in its pathogenesis differed somewhat from the benign placental neoplasms commonly described in the literature. The tumor was an angiofibroma situated upon the chorionic surface of the placenta. Microscopic sections showed numerous capillaries arranged in small groups and occupying the center of small zones of fibrous tissue. Morphologically these areas resembled placental villi except for absence of the peripheral epithelium, neither Langhans nor syncytial cells were present. In some areas the stroma had lost its myxomatous character and had become definitely fibrous. In the deeper portions of the tumor the vascular elements were more numerous and were separated only by a few fibrils of connective tissue. Except for a slight increase in the thickness of the endothelium which

characteristic of vascular neoplasms in general the capillaries were quite normal

Although tumors of this type have no connection with the neighboring placental cotyledons their origin from the placenta is shown by the typical chorionic stroma and the presence in the younger portions of the growth of shadows of placental villi As a result of the lack of development of the Langhans and syncytial cells the rudimentary villi do not come into contact with the maternal blood and hence do not take on a placental function nourished by the fetal vessels they exist as a distinct tissue within the placenta The stroma develops apace with the connective tissue of the fetus to become well differentiated connective tissue

The tumors are therefore not primary but develop secondarily to the agenesis of the Langhans and syncytial cells The apparent superabundance of vascular elements in some portions of the neoplasms is due to defective development of the stroma rather than to an increase in the number of capillaries The metaplasia of the stroma may be considered the direct counterpart of the hyperplasia of the epithelial elements of the villus in hydatidiform mole In the benign tumors agenesis of the epithelial layer leads to loss of contact between the villus and the maternal blood stream whereas in hydatidiform mole the agenesis of the blood vessels leads to loss of contact between the fetus and the villus In both conditions disturbances in the circulatory function are the prime etiological factors

HAROLD C MACK M D

**Pery Severe Hyperemesis With Acidosis During Pregnancy** (Syndrome brusque de vomissements d'allure incoercible avec acétone m.e au cours de la grossesse) *Bull Soc d'obst et de gynéc de Paris* 1930 xiv 650

The author is of the opinion that obstetricians have classified too strictly the manifestations of the so called toxemias of pregnancy Most classifications show three main groups hyperemesis gravidarum albuminuria and eclampsia Such groupings are altogether too narrow since they do not include excessive vomiting without albuminuria during late pregnancy the various states of acidosis without diabetes and certain nephritic conditions which respond to specific treatment and must therefore be attributed to syphilis as shown by Riviere

In this report the author presents two cases of hyperemesis with acidosis a type of hyperemesis which may occur early or late in the course of an otherwise normal pregnancy or following a definite toxic disturbance and does not fit into the usual scheme of classification He attributes the vomiting in these cases to a sudden derangement in the hepatopancreatic physiology The symptoms and the associated acidosis responded rapidly to treatment with insulin Pery does not attempt to explain the etiology of this condition but assumes that since improvement followed the use of insulin the pancreas was in some way responsible

HAROLD C MACK M D

**Anselmino K J and Hoffman F The Concentration and Dissociation Constant of the Acids Causing the Acidosis of Pregnancy** (Ueber Konzentration und Dissoziationskonstante der die Schwangerschaftsacidose bedingenden Säuren) *Arch f Gynaek* 1930 cxl 373

Investigations of the metabolism in pregnancy carried out heretofore have not led to definite conclusions Hasselbach and Gammeltoft assumed originally that the blood reaction remains constant and compensation is made for the resulting acidosis Later investigators using widely different methods found an acidosis in some cases and an alkalosis (especially Siedentopf and Eisler recently) in others It was believed that the alkalosis was caused by overcompensation of the acidotic metabolism Most investigators ascribe the acidosis to oxybutyric acid diacetic acid and lactic acid If this assumption were correct the increase in acid substances would be equivalent to the excreted bicarbonate but it can be shown that these acid valences equal only from one fifth to one seventh of the actual acid concentration

The authors have attacked the problem by other methods They have determined the effect of the acids in the serum on the electrometric titration curve The titration curve depends upon the dissociation constant of the acid formed The authors interpolate here a short clear review of the physico chemical bases of the buffer effect in displacement of the reaction The dissociation constant is of importance because it is a measure of the strength of the acids The hydrogen ion concentration is entirely dependent upon this value the concentration of the free acid and the concentration of the salt The technique of the estimations is described in detail The authors added increasing amounts of acids to constant amounts of the ultrafiltrate and each time determined the reaction electrometrically The normal titration curve was determined in this manner in five non pregnant women a number of normally pregnant women and a few women in the puerperium In several cases a third curve measured in a control solution similar in its constituency to the ultrafiltrate of pregnancy was taken as the so called control curve From these curves it was seen that beginning with the seventh month of pregnancy an increase in acidity of about 50 per cent develops A distinct acidosis is also demonstrable on the first day of the puerperium

In conclusion the authors discuss the nature of these acids It is evident from the curves that acetone bodies and lactic acid constitute only from 12 to 15 per cent of the total increase in acidity and that 85 per cent of the increase must be produced by other valences It is possible that oxyprotein acids and polypeptides play the most important rôle with perhaps the low fatty acids aiding in a small degree The concentration of this still unknown acid mixture is about 1/110 normal as estimated with a medium dissociation constant of  $p_k = 3.6$

KESSLER (G)

Seitz L. The Symptomatology Prophylaxis and Treatment of Eclampsia and Its Forerunners (Zu Symptomatologie Prophylaxe und Therapie der Eklampsie und ihrer Vorläufer) Arch f Gyn 1933 cvl 52

This article is based chiefly on the results of investigations in the author's own clinic. Seitz proposes to combat eclampsia particularly by treatment of its forerunners. One hundred and forty cases seen in the period from 1922 to 1929 were studied.

Eclampsia does not come without warning. It begins with oedema (the hydrops of pregnancy due to a change in the permeability of the capillaries). This is a pathophysiological phenomenon of pregnancy but it reaches a pathological degree when the slight swelling at the ankles rises to the legs. The albuminuria (nephrosis) leads to pre-eclampsia with an increase in the blood pressure (the blood pressure characteristically shows a slight increase in eclampsia). Another pre-eclamptic symptom is the diminution in excitability of the median nerve (cathode closure contraction with 3.6 ma as compared with 0.9 ma at the end of pregnancy and 1.8 ma in the non-pregnant normal woman). According to Seitz, this decrease in excitability is the most important sign of the transition into eclampsia. There are also the changes in the urine. The subjective symptoms appear as a triad: severe headache, eye symptoms and gastric symptoms.

After briefly mentioning the changes which pregnancy produces in the maternal organism which changes must be recognized in order to understand the pathological phenomena, the author discusses also in great detail the prophylaxis of eclampsia in its preliminary stages. He treats threatened eclampsia with caesarean section. In existing eclampsia also he performs caesarean section when there is no dilution of the cervix; otherwise he uses version and forceps under proper conditions.

The conclusions as to the retrogression of the symptoms in pre-eclampsia and eclampsia are very interesting. In general it is assumed that pre-eclampsia is the lighter form of the disease and that the changes produced by it do appear more rapidly than those of eclampsia. This is not correct. The curves obtained by the author which however were based upon a small number of observations indicate that the reverse is true. IF FORTH (G)

Stroganoff B. The Result of the Treatment of Eclampsia by Telephone Consultation (Le résultat du traitement de l'éclampsie par consultation par téléphone) Gyn et Obst 1930 x1 385

The literature reports 6193 cases of eclampsia treated by the prophylactic method and its modifications with a mortality of 10.25 per cent (635 deaths). These results demonstrate the great decrease in the mortality that would be possible if this method were generally adopted.

The author reviews 351 cases of eclampsia treated exclusively by the perfected prophylactic method since March 1925. The mortality was 7.1 per cent.

In most of the cases he directed the treatment by telephone consultation. He believes that the mortality can be reduced to 4 per cent.

The cases in which the treatment failed are reported briefly and the causes of failure are discussed. In some of the fatal cases the death was due to causes other than eclampsia and in some the author's directions were not followed.

The corrected infant mortality was 8.6 per cent.

PAGE

Bland P B. Goldstein L and Wenrich D H. Vaginal Trichomoniasis in the Pregnant Woman. A Clinical and Morphological Study. J Am Med Ass 1931 xcvi 157

Following a review of the literature on trichomonas vaginalis in pregnant and non-pregnant women, a description of the methods of examination and cultivation of the organism used by themselves and others, and a discussion of the morphology of the organism, the authors report the findings of a study of the vaginal secretion of 500 pregnant women. In this investigation the parasites were found in 118 (23.6 per cent) of the subjects.

The authors conclude from their own study of the organism in fresh material and on fresh and stained smears that it is distinct from other species of trichomonas found in man. It rather closely resembles the form found in the mouth. Some of its characteristics are in sharp contrast to those of the intestinal variety. The authors are unable to obtain long lived cultures. The parasite failed to grow on media which proved favorable for the intestinal variety. The flagellate was found in 33.7 per cent of the 257 negro patients as compared to 13.2 per cent of the 243 white patients. The authors suggest that this variation may be explained by differences in local hygienic conditions.

In 12.6 per cent of the cases in which the smears were positive there was local irritation and in many there was a profuse annoying discharge. The vaginal secretion varied from the normal milky white material consisting of mucus and epithelium to a highly acid mucopurulent creamy yellow and often foamy discharge containing numerous bacteria, vaginal epithelium, leucocytes and hordes of trichomonads. The local morbid changes ranged from a more or less hyperemic punctate injection of the cervix and vaginal walls, especially about the fornices to an extensive intertrigo of the vulva and vulvar regions. In some cases the appearance of the vagina except for the frothy discharge suggested an acute gonorrheal infection. In only 2 cases however were the trichomonads associated with gonococcal invasion.

The relationship of trichomonas vaginalis to puerperal morbidity was studied in 152 cases. Regarding the mode of delivery, the morbidity rate was considerably increased in both white and negro women suffering with the infection, reaching 75 per cent in the former and 41 per cent in the latter.

GOO RICH C. SCHAUFFLER M.D.

Contarini F Subserous Uterine Myomata in Pregnancy (*Miommi uterini sottosierosi in gravidanza*) *Chir o let* 1930 xxxi 611

Contarini reports two cases of pregnancy complicated by subserous uterine myomata. The first was that of a woman thirty eight years of age who entered the hospital in a serious condition with vomiting a small rapid pulse and intense pain in the abdomen. Examination disclosed a pregnancy in the fourth month and a subserous myoma with torsion of the pedicle. The myoma was enucleated. The pregnancy continued and ended in normal delivery.

The second case was that of a woman thirty five years of age who suffered from pain and vomiting in the fifth month of pregnancy and noticed that her abdomen was abnormally large for the stage of the pregnancy. One physician had made a diagnosis of pregnancy with multiple myomata and another a diagnosis of twin pregnancy. At the seventh month the patient had pain and metrorrhagia but the os did not dilate beyond 4 cm. A diagnosis of multiple tumors complicating pregnancy was then made. Operation disclosed an enormous nodular tumor mass and a dead fetus seven months old. Uneventful recovery resulted.

The author concludes that in cases of uterine myoma complicating pregnancy operation is indicated when (1) there is no doubt of the diagnosis and it is evident that removal of the tumor will eliminate the complications and allow the pregnancy to continue (2) there are signs of necrosis and degeneration of the tumor (3) the myoma causes deviations of the uterus which will interfere with normal development of the pregnancy (4) there is torsion of the pedicle of the tumor with signs of peritoneal reaction and (5) the tumor exerts pressure on the ureter intestine or pelvic veins.

AUDREY GOSS MORGAN M D

## LABOR AND ITS COMPLICATIONS

La Haye P The Influence of Artificial Rupture of the Membranes on the Progress of Labor (*Influence de la rupture artificielle de la poche des eaux sur l'évolution de l'accouchement*) *Rev f c d g* 1930 xxxi 657

This report is based on observations made at the Strasburg Clinic where artificial rupture of the amniotic sac has been carried out routinely over a period of almost three years in all cases in which the membranes remained intact after the onset of labor. The author concludes that the classical conception of the hydrostatic action of the bag of waters in promoting dilatation of the cervix is erroneous. Not only is the bag of waters dispensable so far as the progress of labor is concerned but in many cases it serves as an obstacle cervical dilatation being brought about entirely by the action of the longitudinal muscle fibers of the uterus.

Following rupture of the membranes uterine contractions usually become more active and labor progresses very rapidly. While in some instances labor

may be prolonged as a result of the procedure the author cites numerous instances in which dystocia was overcome by it.

In cases of relatively contracted pelvis early rupture of the membranes aids prompt entrance of the floating head into the superior strait so that the uterine contractions bring about configuration of the fetal skull and its adaptation to the birth canal from the very onset of labor. In such cases as well as in those with normal pelvic measurements in which the head is floating this procedure hastens the advance of the head. Moreover it eliminates danger of presentation and prolapse of the umbilical cord as well as the spasmodic contraction of the lower uterine segment which is so frequently observed when the head remains high and does not enter the lower uterine segment when dilatation begins.

In the technique described by the author the amniotic sac is perforated anteriorly with a perforator which makes only a very small opening so that the fluid will drain away gradually.

Postpartum infections operative interference and fetal complications have been no more frequent in cases in which the membranes were ruptured artificially than in those in which the rupture occurred spontaneously. The author is convinced that this procedure is not only harmless but also advantageous. It may be carried out during any stage of labor. In the cases of primiparae it is best done as soon as the cervix has become completely effaced and in the cases of multiparae just before the cervix admits one finger. Before it is undertaken the patient must be definitely in labor. HAROLD C MACK M D

## PUERPERIUM AND ITS COMPLICATIONS

Le Lorier Tzanck and Dalsace Immunotransfusions in Puerperal Infections (*Les immunotransfusions dans lafection puerperale*) *Bull So d obst t de gyn c de Pa* 1930 ix 612

The authors report the results of the treatment of puerperal infections by transfusions of blood from donors artificially immunized to streptococcus infections according to the method described by Tzanck and Jaubert. Eight of nine cases reported were treated by immunotransfusions and one case with non immunized blood. This method of treatment was resorted to only after other methods of treatment had failed to improve the patient's condition. Three patients with blood cultures positive for the streptococcus recovered quickly after small transfusions of immunized blood whereas a fourth the patient treated with non immunized blood failed to recover. Of the five patients with blood cultures negative for the streptococcus who were treated with the immunized blood three (including one with erysipelas) improved rapidly one whose blood culture contained an enterococcus failed to respond and left the hospital in a moribund state and another developed a pulmonary complication from which she recovered slowly without showing any immediate improvement after the immunotransfusion.

The authors regard immunotransfusion as the least dangerous and the most efficacious method of treating puerperal infections. While they emphasize that the procedure is by no means a panacea since careful examination may reveal an associated local or organic condition requiring supplementary treatment by some other method (e.g. surgery) they believe that early transfusion from specifically immunized donors offers great possibilities.

In the discussion of this article Levy-Strauss cited several cases which he treated successfully by the method described.

HARRISON MACNICHOL

### NEWBORN

|               |                                |          |
|---------------|--------------------------------|----------|
| Bock A        | Total Congenital Hydrops (Ubi) | le       |
| Hydrop        | l o h t )                      | Zil f Ge |
| b t h c k g j | 2 7                            |          |

The author reports two cases of total congenital hydrops.

In the first case the mother was a para vi aged twenty eight years. One of her children is living. The others which had been born a few weeks prematurely had died between the second and fifth days from jaundice. The woman had a marked edema of the ankles but no albumin was found in the urine. During expulsion forceps were applied as the fetal heart sounds were weak. The fetus was delivered through a facial presentation for further delivery was difficult. The arms were freed but the trunk could be delivered only after puncture of the abdomen which released large amount of intensely yellow clear fluid. The placenta was 3 cm thick 27 by 10 cm in diameter and erythematous. It weighed 1300 gm. The puerperium was uneventful. The Wassermann and Sachs-Georgi reactions were negative. The fetus weighed 3270 gm (ascites had disappeared) and was 48 cm long. It showed a marked general edema, the eyes and mouth being recognizable only as thin clefts. The cranial bones showed ballottement and the spleen, liver and heart

were found to be enlarged. There were no signs of syphilis. On histological examination numerous foci of blood formation were found in the liver, kidneys and spleen.

In the second case the mother was a primipara aged twenty five years who had a premature delivery in the sixth month. The fetus was in sacral presentation. The sacrum was delivered spontaneously but termination of the labor required puncture of the fetus for the evacuation of a collection of fluid. The fetus presented general hydrops and was 36 cm long. The placenta was edematous and excessively large. Syphilis could be excluded in the parents as well as in the fetus.

Examination of the blood cells in these cases was impossible and a blood picture in the kidneys was obtainable only in the first one. The latter showed numerous nucleated erythrocytes and juvenile forms of leukocytes. In both cases syphilis and circulatory obstruction could be excluded and the total congenital hydrops of the fetus and placenta described by Schröder was present.

All cases of hydrops described in the literature may be divided into two main groups. In one the causative factor is a circulatory disturbance. In the other the child is born prematurely and has many sites of blood formation in the liver, spleen and kidneys. The latter group was first differentiated pathologically by Schröder and Gieseler. The blood picture presents a marked anemia with erythroblasts and myeloblasts. In the bone marrow myeloblasts predominate. The cause of the hydrops is still undetermined but the author assumes that it is the action of a toxin. Foci of blood formation in erythroblasts may occur also in cases of the first group. They may be the results of the general edema (K. Meyer). In almost all of the cases in Hinselmann's table there was anemia or albuminuria in the mother. The author believes that the causes of toxemia may be responsible for congenital hydrops.

W. K. ELLER (U)

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Braasch W F Anomalous Renal Rotation and Associated Anomalies *J Urol* 1931 xiv 9

The various anomalies of the kidney and their clinical significance have been widely discussed in recent years and many data of great clinical significance have been reported. Although the various renal anomalies in regard to form, position and number have been described frequently, anomaly of rotation has been referred to only briefly. Braasch has observed cases in which anomalous position and form of the renal pelvis was the most prominent or the only clinical evidence of abnormality.

Abnormal rotation of the pelvis is variable in degree and may be described by the terms: failure, incomplete, reverse and excessive. It does not necessarily involve the entire kidney but may be confined to one pole and may affect only a segment of the pelvis and adjacent calyces. It may occur as the result of congenital or acquired factors. When it is of congenital origin it is referred to as anomalous rotation. Abnormal rotation secondary to acquired factors is best designated by the term renal torsion. Anomalous renal rotation may occur with or without any other evidence of congenital anomaly. It is most frequently observed with some other form of renal anomaly such as fused or ectopic kidney.

In fused kidneys the pelves remain situated on the anterior part of the kidney as the result of the inability of the kidneys to rotate. There may be difficulty in distinguishing between fused kidney and simple anomaly of rotation, particularly if both pelves are involved. As a rule these two conditions can be recognized in the urogram from the distance separating the two pelves, since in fused kidney this distance is usually abnormally short. Occasionally, however, renal fusion has been observed when the interpelvic separation was so great that fusion would seem impossible.

Failure of the embryonic kidney to make its normal ascent results in congenital renal dystopia or ectopic kidney. The kidney is usually abnormal in form and structure and as a result of failure of rotation the pelvis is situated anteriorly and is bizarre in outline. The renal blood vessels are usually abnormal in number and arrangement and often influence the anomalous shape and position of the kidney and its pelvis. Failure of rotation has been attributed to the facts that the kidney is situated at a level below which rotation of the ascending colon is supposed to take place and in some cases it may be restricted by adjacent and aberrant blood vessels.

When renal anomaly is characterized only by anomalous rotation, the degree of rotation may vary

and may be described by the terms: absent, incomplete, excessive or reversed. Although the pelvis may be in a normal position it is more frequently observed with either lateral or mesial displacement or with slight ptosis. It is usually situated on a level with the second lumbar vertebra. However, it may be slightly lower and is then distinguished from ectopic kidney by the fact that its blood vessels take origin at the usual level of the renal artery and vein. With failure of rotation the pelvis lies on the anterior surface of the kidney. With partial or incomplete rotation the normal axis of most of the calyces and the normal relation of the pelvis and ureter are retained although several of the calyces may remain anterior.

Although evidence of anomalous rotation may be confined to one kidney, there is often some minor evidence of anomaly of rotation in either the contour of the pelvis or one or more calyces in the other kidney. Frequently only one of the duplicated pelves is involved, usually the lower. This condition must be distinguished from renal anomaly in which failure of renal rotation occurs secondarily. Evidence of renal rotation may be observed with clinical conditions in which it may be difficult to determine whether the rotation was primary or secondary.

Abnormal rotation of the kidney due to other than congenital factors may best be referred to by the term renal torsion. This condition is acquired and may result from displacement from either extra renal or intrarenal pathological conditions such as neoplasms, infections and pyelectasis, renal ptosis, postoperative deformity and injury.

Occasionally in the course of pyelographic examination a renal pelvis is observed which has a shape suggestive of congenital deformity and has been termed an embryonic pelvis. It is an elongated pelvis from which a series of abbreviated calyces extend laterally, anteriorly or mesially at comparatively regular intervals. Like other forms of renal anomaly, it is associated with other congenital defects.

In summarizing Braasch states that anomalous rotation is apparently an important etiological factor in the pathological complications which frequently occur with renal anomaly. It is most commonly observed with renal fusion and congenital dystopia but may occur also without any other evidence of renal anomaly. It may be the cause of urinary stasis and pyelectasis with resulting renal pain and may be regarded as a distinct clinical lesion.

Renal rotation secondary to acquired factors is distinguished by the term renal torsion. It can usually be recognized clinically from the absence of other evidence of embryonic deformity.

A sacculated elongated pelvis with multiple abbreviated calyces extending laterally and an elongated



cephalic calyx are the characteristic features of the so called embryonic or congenital pelvis.

Nephralgia of obscure causation is frequently associated with anomalous rotation but surgical exploration may disclose little evidence of gross pathological change other than anomaly.

Muñoz Abud and Lira: Renal Ptosis and Appendicitis (Ptosis and Appendicitis). *Rev. Méd. de Chile* 1931, 845.

In 1928 the author treated sixty-five cases of ptosis of the kidney. Thirty-five were treated surgically. In the thirty others non-surgical treatment was given either because of serious insufficiency of the kidney or because the patient refused operation. Of the thirty-five patients operated on eighteen were suffering also from chronic appendicitis. In five cases pyelography showed varying degrees of bilateral hydronephrosis. In most of the cases function was about the same in both kidneys. In cases of advanced hydronephrosis true floating kidney, the renal parenchyma, as affected and function as considerably impaired. In fifty of the sixty-five cases roentgen examination showed marked enteroptosis. As the digestive symptoms in some of the cases were relieved by simple fixation of the kidney it is evident that there is reflex.

The presence of chronic appendicitis may be masked by reflex pain but often there is pain at Laste's point medial to the anterosuperior spine of the ilium. This point is lateral to and below McBurney's point. The authors think it of great importance in the diagnosis of cases of chronic appendicitis associated with ptosis of the kidney. Frequently in such cases an operation is performed for the appendicitis and the mobile kidney is neglected. The symptoms therefore not being relieved. This occurred in three of the author's cases. However it is an even greater mistake to operate for ptosis of the kidney and overlook chronic appendicitis. The authors have therefore adopted the practice of performing appendectomy in all cases of operation for ptosis of the right kidney.

In the preparation for ptosis of the kidney fixation and denervation of the plexus. For fixation they use a band of silastic upon urethra. It has been kept in 90 per cent alcohol for about fifty days.

V. DE V. G. S. M. R. M. D.

Lozzi V. and Vitali A.: The Pyelovenous Reflux (Silastic band). *P. I. R. M.* 1930, 588.

Pyelovenous reflux is the passage of urine dyes or contrast media from the kidney pelvis into the renal veins. Hynman and Lee Brown concluded that there is a reflux from the renal pelvis into the renal veins at a lower pressure than that necessary for renal secretion. Bird and Mose conclude that the reflux occurs into the tubules.

The authors studied the problem in rabbits and dogs—a group of normal animals and a group in which hydronephrosis had been produced. The pro-

cedures of the experiments are given. They show in agreement with the findings of Hynman and Lee Brown that a reflux of dyes and opaque media into the renal veins occurs at a pressure lower than that necessary for urinary secretion. At higher pressures there is a slight filling of the collecting tubules but neither this nor the injection of the lymphatics was great enough to be of any importance. The resistance as increased when the pelvis were filled with air. The animals did not show any signs of disturbance until the pressure reached about 200 mm Hg. In a case in which infection occurred and resulted in uropneumothorax a higher pressure was necessary to bring about pyelovenous reflux. In no instance was there any laceration, extravasation or infiltration of the parenchyma.

The reflux probably takes place by direct passage of the fluid from the fornices of the lesser calyces into the rich venous plexuses at the bases of the pyramids through slight lesions which cannot be demonstrated objectively. It takes place more readily and at a lower pressure in hydronephrotic kidneys than in normal kidneys. In closed hydronephrosis it constantly increases the fluid in the sac but in uropneumothorax it occurs with greater difficulty. The authors conclude that the accidents sometimes seen in pyelography are due to the passage of the opaque medium into the circulation in this way. V. DE V. G. S. M. R. M. D.

Placcini P. and Lucarelli G.: An Experimental Study of Hydronephrosis (Circulation permeability). *Chirurgia* 1931, 35.

In experiments to determine the difference in the anatomicopathological changes in open and closed hydronephrosis the authors examined pieces from the walls of each sac taken from the poles of the kidney and the middle of the convex margin. Studied the effect of the extrarenal circulation on the development of the hydronephrotic process and the changes in form of the hydronephrotic kidney. Determined the capacity for secretion and absorption of the hydronephrotic kidney by intravenous pyelography. The uroselectan and studied the condition of the reticulo-endothelial tissue. The protocols of the experiments are supplemented with microphotographs. Closed hydronephrosis as produced by constraining and ligating the ureter and open hydronephrosis by introducing a small perforated glass cannula into the ureter or compressing it with forceps.

It was found that in open hydronephrosis the chief histological change is a sclerotic glomerulonephritis. In closed hydronephrosis the appearance for a brief period of slight signs of degeneration of the epithelium of the tubules is followed by neoformation of the stroma and atrophy of the parenchymatous elements. At the points where the large extrarenal vessels enter the organ the parenchyma is well preserved and functioning a long time after the beginning of the hydronephrosis. During the development of the hydronephrosis the shape of the

kidney changes slightly in the dog and markedly in the rabbit. In both but more particularly in the latter the distention of the organ is more marked in the anteroposterior direction.

The capacity for resorption of the hydronephrotic fluid measured by the intravenous injection of uroselectan and roentgenography was very marked in the dog and very slight in the rabbit. The difference is due to the difference in the extrarenal circulation in the two animals. In the dog the capsule has a rich network of vessels whereas in the rabbit it has a poor one.

In the second period of hydronephrosis the glomeruli assume an oval form. One end of a line drawn through these ovals from pole to pole would run toward the hilus of the kidney and the other end toward the convex margin. The great resistance of the glomeruli as compared with the rapid atrophy of the tubule cells is perhaps due to their position as well as to their anatomical structure. The glomeruli which survive longest are the most peripheral ones which are least subjected to the pressure of the hydronephrotic fluid and are nearest the zone of anastomosis between the intrarenal and extrarenal circulation. The reticulo endothelial system atrophies with the epithelium of the tubules and is finally replaced by collagenous connective tissue.

AUDREY GOSS MORGAN M D

**Salleras J Painful Slight Hydronephrosis. Its Treatment by Enervation of the Renal Pedicle and Nephropexy** (Las pequeña uronefosis dolorosas. Su tratamiento por la enervación del pedículo renal y nefropexia). *Rev de esp c l d de isoc med gent* 930 11 3

The author calls attention to the relatively large number of patients who seek medical advice for renal pain that cannot be ascribed to the ordinary pathological processes affecting the kidney. The pain resembles that of nephritic colic due to lithiasis but the latter condition can usually be ruled out by roentgenography. Tuberculosis and pyelonephritis are excluded by a clear urine and renal tumor and the so called hæmaturic nephritis by the absence of hæmaturia. As a rule the cause of the pain hydronephrosis can be discovered by pyeloscopy and pyelography.

The hydronephrosis is caused by polar vessels which compress the renal pelvis or disturb its motility and the pain by congenital malformation of the ureter at the ureteropelvic junction. The malformation of the ureter produces no symptoms so long as the kidney remains in its normal position but when relaxation of the perirenal tissues occurs—as is usual after the twenty fifth year of age—they cause a characteristic renal colic which always begins when the subject is in the erect position or following a strain.

The author reports four cases treated surgically. In all the nerve filaments around the renal area were resected in an area 3 cm long and nephropexy was performed according to the classical technique.

Whenever abnormal polar vessels were found compressing the renal pelvis or the ureter they were sectioned if their lumina were not too large.

On roentgen examination after the patient's recovery it was found that the defects previously noted had disappeared or were modified. A cure resulted in every case. P R CASELLAS M D

**Rodriguez Molina L F and Hernandez Ibañez J H The Present Status of the Study of Urogenital Tuberculosis** (Estado actual en el estudio de la tuberculosis urogenital). *An de ci ug* 1930 1 399

Although according to Cathelin about 10 per cent of the pathological processes in the urinary tract can be ascribed to renal tuberculosis the authors believe that tuberculosis of the kidney is only the third most common disease of the urogenital tract. They are of the opinion that the most common condition is gonorrhoeal infection and the second most common condition is lithiasis.

Tuberculosis of the kidney generally begins with symptoms of cystitis hæmaturia pyuria pollakiuria polyuria or albuminuria. Pain develops late and is usually due to secondary infection with retention. Tumefaction is present only when there is obstruction at the ureter causing hydronephrosis.

In discussing the laboratory tests the authors emphasize that an acid urine containing pus even though free from bacteria should be regarded as evidence of renal tuberculosis. The technique of the procedure in searching for the tubercle bacillus is described in detail. A search must be made for foci of tuberculosis elsewhere than in the urinary tract. The methods used to determine the site of infection viz ureteral catheterization pyelography cystography vesiculography and urography are discussed. The authors believe that even when the tubercle bacillus cannot be demonstrated the leucocytic deformation observed by Colombine Legueu and Fisch is a certain sign of renal tuberculosis if it is accompanied by bleeding from the kidney and few if any bacteria.

The treatment of renal tuberculosis is medical only in cases of bilateral infection in which the functional efficiency of the kidney is so impaired as to make surgical intervention inadvisable. The operation of choice is early nephrectomy or nephroureterectomy. Before surgery is undertaken it is essential to ascertain the condition of the other kidney. When the disease involves the genital tract resection of the vas deferens epididymis testicle and seminal vesicle is indicated.

Several cases are reported with roentgenograms. P R CASELLAS M D

**Pieraccini P The Physiopathology of the Ureter Subjected to Forcible Pressure** (Sulla fisiopatologia dell'uretere sottoposto a forcipressura). *Arch ital d chir* 1930 xvii 585

To determine the effect of forcible pressure on the dynamics of the ureter the author operated on rab-

bits and dogs in some cases by the transperitoneal and in others by the retroperitoneal route and applied Kocher's forceps. Later he performed an exploratory laparotomy and made roentgen examinations in series after the intravenous administration of uroselectan.

He found that at the point of application of the forceps the forcipressure caused an annular scar which did not occlude the lumen but caused stenosis. Examination by retrograde pyelography showed that after seventy days in the cases of dogs and thirty-five days in the cases of rabbits there was a constriction of the lumen at the point of application of the forceps and that above and below this constriction the ureter was enlarged as compared with the ureter on the other side. The part of the ureter below the forcipressure dilated first and then the part above it. In the former of these portions the musculature atrophied particularly the longitudinal layer. In the latter portion it first hypertrophied and later atrophied.

Studies of ureteral function at laparotomy showed that the hydronephrosis which followed the forcipressure was dynamic and not mechanical. During the application of the forceps the peristaltic waves descending from the pelvis became more frequent but stopped at the level of the forceps. The part of the ureter below the forceps remained motionless and atonic. When the forceps were removed a circular groove remained in the ureter but this generally redistended after a few contractions of the upper part. Recanalization of the ureter occurred very quickly when the forcipressure had not lasted more than twelve minutes. Peristalsis then continued from the upper part into the lower part but the latter behaved like an elastic rather than a contractile organ. Normal peristalsis was rarely seen in the lower part and sometimes it did not coincide with the peristalsis coming from the pelvis. Later the difference between the activity of the upper part and that of the lower became even more marked. Normal peristalsis of the upper part was followed by an annular stricture of the lower part which descended slowly toward the bladder. In the lower part and particularly in the part immediately below the forcipressure there was marked atony causing stagnation of urine which could be seen by means of pyelography with the intravenous administration of uroselectan. Even seventy days after the forcipressure the caudal stump continued to react to mechanical stimuli with normal peristaltic contractions.

AUDREY GOSS MCGAN M.D.

IIphura T. N. D. Neatlon and Displacement of the Ureter for Kidney Colic. *Am J Surg* 1933.

The case is a definite group of cases of renal colic in which no pathological changes can be demonstrated and a diagnosis of neurosis of the kidney or ureteral stricture may be made. The patients are usually highly sensitive women who react exaggeratedly to any painful irritant. The attacks are precipitated by

emotional stress and require large doses of morphine for their relief. The patients are apt to lose weight and their tissues tend to become flabby. The secondary picture is one of loss of muscle tone, nephroptosis, kinked and redundant ureters, and possibly a superimposed true pyelitis. In advanced stages nephropexy offers no relief.

For such cases the author proposes the operation of denervation and displacement of the ureter. His theory being that the renal colic is due to a violent spasm of the ureter secondary to an emotional disturbance which is similar to spasm in other tubular structures. Severing the ureter from its connection with sympathetic nerve fibers may prevent the spasms. Displacement of the ureter from its normal bed prevents or delays regeneration of the sympathetic nerves and takes up the slack in the redundant ureter thereby giving better drainage.

With the patient in the usual dorsolumbar position the incision is made from the costal margin to the pubic bone following the lateral margin of the rectus muscle. In this way the ureter is exposed retroperitoneally its full length. It is then lifted from its bed and displaced laterally until all of the slack is taken up and in its new position it is sutured to the nearest muscle structures with three or four fine sutures lightly penetrating its outer coat. The wound is then closed.

This operation is simple and not dangerous and has little reaction. In a case in which it was done in 1926 there has been no recurrence of the symptoms and the function of the kidney is normal.

LOUIS H. CLEVER M.D.

# BLADDER URETHRA AND PENIS

Alumad C. R. and Vargas Syphilis of the Bladder (Syphilis) *Am J Chl* 93.

For a long time syphilis of the bladder was thought to be extremely rare because it has no special symptoms and can be diagnosed only by cystoscopic examination. Even now it is not seen frequently but the possibility of its presence should always be considered in the examination of patients with bladder symptoms of unknown cause. The history should be carefully studied for syphilis and serological examinations should be made.

In tertiary syphilis there is a leukoplakic, gummatous, an ulcerogummatous and a pearled form of bladder syphilis. All of these have been described before. The author describes a new form which he calls the squamous form. In this condition cystoscopy shows small confluent elevations of the mucous membrane with intervening depressions which give the impression of fish scales. When large zones are affected the bladder has the appearance of mosaic with a mother of pearl color. Illustrative cases of the different forms are reported.

In cases of stubborn dysuria syphilis should always be thought of even if there is no history or clinical symptoms of it. As the lesions are tertiary

the best treatment is the use of mercury and the iodides. In the authors' cases the use of mercury and iodides is generally preceded by preliminary cleansing treatment with neosalvarsan.

AUDREY GOSS MORGAN M D

**Salleras J.** The Results of Electrocoagulation After Suprapubic Cystotomy in Malignant Tumors of the Bladder (Resultados de la electrocoagulación a cielo abierto en los tumores malignos de vej. a) *R. de especialidades Asoc. med. argent.* 1930 v 1334

The author reports with photomicrographs eight cases of malignant tumors of the bladder which were treated by electrocoagulation after suprapubic cystotomy. They show that cases of degenerated pedicled tumors can be cured by this method when the degeneration is limited to the pedicle or is superficial at the site of its implantation. A cure can be obtained also by the endoscopic method but when this procedure is used a greater number of treatments and more time may be required. Salleras cites a case which he treated by endoscopic electrocoagulation. The bladder tumor was cured but the patient died several years later of cancer of the stomach.

When there is deep infiltration the general condition may be greatly improved by electrocoagulation of the tumor but cure is impossible because the glands are invaded and as a rule metastases are present. The author emphasizes the necessity of paying greater attention to urinary symptoms particularly hæmaturia without apparent cause and

spontaneous cystitis as these may lead to the diagnosis of malignant tumor of the bladder in the early stages when cure is still possible.

In the discussion of this report ASTRALDI said that he had treated fifty three cancers of the urinary tract but the results were not successful as all of the lesions were in an advanced stage. He noted a high incidence of bone metastases particularly in the lumbosacral spinal column. He believes that in cancer of the bladder prostate and kidney surgery is contra indicated.

SCHIFFARIETRA cited a case of spindle celled sarcoma of the bladder which was cured by two applications of cystoscopic electrocoagulation.

CASTANO said that in his opinion electrocoagulation increases the malignancy of cancer of the bladder. He regards it as always contra indicated in cases of sessile tumor. Even in cases of pedicled tumors in which complete removal of the neoplasm was possible he has known it to be followed by metastases in the bones.

AUDREY GOSS MORGAN M D

**Silbar S J.** Paraurethritis. *J U I* 1931 vol 85

Silbar discusses the anatomy and embryology of paraurethral ducts, calls attention to their importance in chronic and recurrent gonorrhœa and describes the technique of their roentgen diagnosis with the injection of a radio opaque substance. He advocates treatment by drainage followed by obliteration of the ducts by caustics or cauterization.

GILBERT J THOMAS M D

# SURGERY OF THE BONES JOINTS MUSCLES TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

Coley W B Multiple Myeloma in 5 & 93  
77

The purpose of this article is not so much to report additional cases of a comparatively rare disease but to throw some light upon the problem of treatment although multiple myeloma is generally considered to be almost fatal. The condition is usually very sensitive to the toxins of erysipelas and bacillus prodigiosus and to irradiation. The inhibitory action of these agents is sufficient to cause great amelioration of the symptoms in most cases and disappearance of the tumors with apparently a lasting cure in a few.

Multiple myeloma is a very rare disease but in recent years there has been an increase in the number of cases reported due in part to the steady growing interest in the study of bone tumors.

The predisposing cause of multiple myeloma is not known. The first symptom is localized pain which is usually intermittent and aggravated by movement. The tumor originates in the cancellous portion of the bone in the marrow. It develops most frequently in the bony humerus femur knee and pelvis. Of the cases seen in the Johns Hopkins Hospital Baltimore fracture occurred in 62 per cent. When fracture occurs in the spine paraplegia may develop. Bence Jones bodies have been observed in about 8 per cent of cases.

The osteogenic rim rarely punched out areas. The roentgen appearance of a single lesion closely resembles that of an endothelial myeloma.

Coley has had sixteen cases. Twelve of the patients are males. The ages ranged from sixteen to eighty years. Microscopic examinations were made in eleven cases. All but one of trauma as given in the case.

The cause of the condition is unknown. In 80 per cent of the cases on record the disease occurred between the ages of forty and seventy years. Its multiple character suggests that it is a constitutional disease carried in the circulation. Coley believes it is an extensive infectious process. This view is supported by the occasional marked rise in the temperature.

The condition most likely to simulate multiple myeloma clinically is endothelial myeloma but in multiple myeloma the destructive process is less widespread and is much more osseous often showing a distinct pulsation. Moreover endothelial myeloma occurs frequently in childhood whereas multiple myeloma is rare before the fortieth year.

While the roentgenogram of the solitary type of multiple myeloma of a long bone may resemble

closely that of a giant cell tumor the giant cell tumor is usually found near the epiphysis of the bone whereas multiple myeloma occurs in the shaft. Moreover in multiple myeloma the course of the disease is more rapid pathological fracture occurs more quickly and the pain is much more severe.

Another condition that may be mistaken for multiple myeloma is metastatic carcinoma but Bence Jones protein is rarely found in metastatic carcinoma and multiple myeloma usually involves the flat bones whereas metastatic carcinoma occurs more frequently in the long bones. In metastatic carcinoma of the prostate there is a certain amount of bone production but in multiple myeloma the process is always one of destruction.

Symmers has reported two cases of multiple myeloma in which metastases were formed in the liver and spleen.

In discussing the results of treatment Coley divides the cases he reviewed into three groups. The first group included three cases treated by mixtures of erysipelas and bacillus prodigiosus the second eight cases treated by toxins and irradiation and the third group four cases treated by irradiation alone. In a number of the cases the disease was held in check for a very considerable period of time by toxins or irradiation or a combination of both. In four cases not so treated by toxins alone one by toxins and irradiation and one by irradiation alone—the disease has apparently been eradicated and the patient has remained well for a sufficient length of time to justify the hope of a permanent cure.

In conclusion the author says that no case of multiple myeloma should be given up as hopeless without a prolonged trial of both toxins and irradiation. R. R. V. F. L. T. & M. D.

A. K. Upm. K. E. A Study on the Pathology of  
Enlargement in Osteitis Fibrosa Generalisata  
11 d 5 93 11 234

The author reports a case of Engel Recklinghausen osteitis fibrosa generalisata which was observed in the medical clinic of Lund and reviewed the recent literature on the condition.

Enlargement of the parathyroid glands is usually associated with osteitis fibrosa generalisata but in an occasional case may be absent. In other diseases it is much less constant. The author reviews various theories as to its relationship to the osteitis. Our present knowledge indicates that it is primarily the bone disease. At any rate the parathyroids are of great importance in the metabolism of calcium and in osteitis fibrosa generalisata the calcium metabolism is disturbed.

Engel Recklinghausen osteitis fibrosa generalisata must be differentiated especially from the osteitis deformans of Paget

In every disease involving the bones palpation of the neck should be done and the blood calcium level determined

In osteitis fibrosa generalisata parathyroidectomy is often followed by obvious improvement There is a certain danger of postoperative tetany but as a rule this can be easily controlled The author believes that parathyroidectomy should be done in every case in which the parathyroids are found to be enlarged

In conclusion the author discusses the calcium metabolism in osteitis fibrosa generalisata the healing of fractures certain affections of the kidneys and Basedow's disease

Steindler A The Tabetic Arthropathies *J Im*  
*W* 133 1931 xcvi 250

This article is based on sixty four cases of tabetic arthropathy with involvement of ninety nine joints The etiology pathogenesis pathology roentgen findings and symptoms are discussed

Forty two of the cases were treated conservatively and 12 surgically Ten received no treatment Of the cases treated conservatively the condition was benefited in twenty four and was not benefited or became worse in twelve In six the period of observation is still too short to warrant an opinion as to the outcome Of the twelve cases treated by operation in which fifteen joints were involved improvement in function resulted in nine joints and no improvement in five In the case of one joint the end result is not yet known

Roentgen examination often shows the first evidence of on coming tabes When such evidence is noted immediate and adequate protection of the joint is indicated for although the changes in the nervous system predispose to the arthropathies mechanical and traumatic factors influence the course of the joint changes

ELVEN J BECKEISEN M D

Davenport H K and Ranson S W Contracture Resulting from Tenotomy *Arch Surg* 1930  
 v Pt 1 996

Myostatic contractures are caused by fixation of the muscle at a given length for a considerable period of time such as the contractures restricting the movements of joints after immobilization for weeks in a plaster cast the permanent shortening of muscles after division of their tendons and in their early stages at least the paralytic contractures due to unequal paralysis of antagonistic muscle groups in anterior poliomyelitis and multiple neuritis

Early contractures can be overcome by active and passive movements but if left untreated result in damage which is irreparable Froehlich and Meyer have shown that this fixation of an immobilized muscle is dependent on nerve impulses from the central nervous system The fact that section of the

dorsal roots supplying the muscle is sufficient to prevent contracture indicates that the integrity of the local reflex arc is essential for its development

Brissaud's observation that an anemia of the affected extremity produced by an Esmarch band age has a relaxing effect on the shortened muscles suggests that the shortening is maintained not by structural alterations in the muscle but by a chemico-physical equilibrium which is disturbed by the anemia

This article describes the micro copic changes that take place in the gastrocnemius muscles of white rats guinea pigs and cats in which the tendon of Achilles had been sectioned and compare these changes with those associated with tetanus contracture The size and shape of the shortened muscle was the same in both conditions but in the muscles in which the contraction followed tenotomy the increased vascularity characteristic of tetanus muscle in gross aspect was absent The amount of shortening in the two types of contracture was similar In the animals subjected to tenotomy the gastrocnemius was completely freed from tension by section of the Achilles tendon whereas in those with tetanus contracture it was freed only from the tension of antagonistic muscles by section of the patellar tendon After tenotomy there was a 20 per cent loss of weight in the muscle In tetanus no loss of weight was shown but it is known that atrophy may occur even from fifty six to one hundred and ten days after recovery from tetanus contracture

Nuclear aggregations which replaced the contractile substance in portions of the arcolemma tube were found in tetanus but not after tenotomy

Connective tissue was not demonstrably increased in either contracture though nuclei of the wandering cell type were more numerous in both

In both types of contracture there was a slight increase in the number of muscle nuclei in scattered fibers but in neither was it marked

RUDOLPH S REICH M D

Meyerding H W Spondylolisthesis *J Bone & Jo Surg* 1931 x 39

Subluxation of the lumbar spine spondylolisthesis is of special interest to the orthopedic surgeon as a congenital or traumatic factor in the etiology of pain and deformity in the lower part of the back Of the 125 cases reported previous to 1900 all but 6 were reported by obstetricians The use of the roentgen ray and careful manual examination of the spinal column has shown that the condition occurs as frequently in men as in women and has explained a number of previously baffling complaints in the lumbosacral region Pain in the lower part of the back which is relieved by rest aggravated by work and associated with industrial injury suggests the possibility of railroad spine or traumatic neurosis yet these disorders are commonly complained of by persons with spondylolisthesis whose appearance is often normal and who seem to be

enjoying undeserved disability benefits. Our present knowledge of the deformity makes it possible for the physician to recognize it, determine the factors responsible for it, and relieve the symptoms to a large extent yet in Meyer's experience fewer than 5 per cent of the cases had been diagnosed previously.

Truma is an important cause of spondylolisthesis and obesity, pregnancy and occupational strain may produce it gradually. Sudden severe injury may instantly cause subluxation with immediate disability and pain. However, congenital defects, variations of the fifth lumbar vertebra and lumbosacral joint are commonly noted during examination. Such defects do not always cause symptoms but when trauma tests the stability and strength of the defective structure, weakness is manifested by strain subluxation and deformity. With the modern technique of making roentgenograms, defects of this type are more easily recognized and spondylolisthesis is more readily distinguished from tuberculosis and other lesions.

Of the series of 12 cases observed at the Mayo Clinic in the period from 1918 to June 1930, 85 (62 per cent) were those of males. These cases therefore did not bear out the observation of others that the condition is more common in females. The average age of the patients seen at the Mayo Clinic as approximately thirty-seven years. Forty-seven (about 38 per cent) of the patients ascribed the deformity to trauma. In most of the 74 cases in which a history of trauma was given, the onset of the trouble had been gradual and the duration long, from one to forty-six years. Fifty patients complained of backache, 35 of pain in the back and legs, 21 of occasional numbness in the legs, 15 of pain in the back and hips, 9 of pain in the legs, 9 of vague indefinite symptoms, 4 of occasional weakness in the legs and 3 of pain in the hips. Although backache was the most common symptom, an equal number of patients complained of pain referred to the hips and legs.

Relief usually gave relief but work especially hard labor aggravated the pain. The pain was usually of a dull aching character. Weakness and stiffness of the spinal column were commonly acknowledged when inquiry was made regarding them. Only a few patients had noticed deformity, although shortening of the torso and a decrease in height had occurred in many cases.

The clinical data which led to the diagnosis of spondylolisthesis were lordosis with a shortened torso, limitation of spinal motion and depression at the fifth lumbar vertebra with prominence of the upper posterior border of the sacrum.

The diagnosis is made largely by inspection and palpation on the basis of a depression in the region of the fifth lumbar vertebra with prominence of the sacrum, more or less spasm of the muscles and limitation of forward bending, verified by roentgenograms. If there is marked forward displacement, the condition is readily recognized clinically. Roentgen

ograms are of the greatest aid in determining the diagnosis, especially in the lesser displacements and in distinguishing tuberculosis, fracture, congenital anomalies and sacroiliac disease.

Congenital anomalies are not uncommon. In about 20 per cent of the series of cases reviewed, spinal dysgenesis was shown in the roentgenogram. One should not depend on the anteroposterior roentgenogram alone; the lateral view is of much greater value and should be taken so as to include the lumbar spine and the sacrum. Stereoscopic roentgenograms aid materially in the study of congenital defects.

Relief of the symptoms is obtained quickly by complete rest flat on the back on a rather firm bed. Traction and countertraction may also be beneficial. Attempts to reduce the displacement have been of no avail but in acute traumatic cases they should be made under anesthesia and followed by the application of a high double spica cast. Most patients obtain relief from pain and have a feeling of security and comfort when wearing a well fitted body cast. Many patients, especially those of the obese type, prefer a corset with reinforced steel stays fitted well down back of the sacrum. For those who must work and whose physical condition permits surgery, offers the most rapid and permanent relief.

Plaster cases, braces and corsets are definitely beneficial when they are properly applied and worn. Because of the long duration of the deformity, manipulation has not been tried. No attempts have been made to reduce the displacement by open operation. The fusion operation is a valuable one; the general condition contraindicates a surgical procedure.

## SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Hubb, R. A., Riser, J. C. and Ferguson, A. B.  
Scoliosis Treated by the Fused Operation.  
An End Result Study of 360 Cases. J. B. & J. 15, 2, 93, 9.

The authors review 360 cases of scoliosis treated by fusion in the period from June 1924 to June 1927. Four hundred and twenty-seven operations were performed. In 37 cases of fusion of a dorsal curve, fusion was done also for an anomaly in the lumbosacral region. In 19 cases the original fusion was extended in 7 cases a pseudarthrosis was repaired and in 4 cases the fusion was done in 2 sections. The longer the fusion at the operation on the greater the postoperative reaction. The mortality was 1.6 per cent (7 deaths).

About 63 per cent of the patients were females. In 44 per cent of the cases the cause of the scoliosis was infantile paralysis and in 4 per cent it was a congenital anomaly. In the others it could not be determined. The onset of scoliosis occurred almost wholly in the preadolescent years. In 56 per cent of the cases reviewed it occurred between the ages of five and fifteen years.

In some of the cases treated in the period from 1923 to 1927 a plaster shell was used the first two weeks after the operation and then replaced by a fixed jacket for from five to twelve months to insure support while the fusion area was maturing.

The authors state that the operation should be done early in the progress of the deformity as it is easier to prevent scoliosis than to correct it.

In the follow up of the cases reviewed a large percentage of the patients were examined with the roentgen ray.

On an average the degree and percentage of correction in similar areas of the spine vary directly with the age of the patient and the duration and severity of the curvature. Not including the patients who maintained the correction obtained by operation there were 50 per cent whose curvature showed no increase of the original curve after fusion 15 per cent who maintained more than 15 degrees of correction 1 per cent who maintained from 5 to 15 degrees of correction and 47 per cent who showed no increase in the curvature.

The most constant sign of pseudarthrosis is loss of correction shown by either clinical or roentgenographic examination. It is most frequently noticed immediately after the removal of the jacket usually at the crest of the curve and continues to increase slowly for the next few months.

The selection of the area for fusion is important. Fusion of only the secondary curve allows an increase of the primary curve. The determination of the area for fusion is most difficult in early paralytic high dorsal curves when the longer secondary dorsolumbar curve attracts most attention. Fusion of the lumbosacral area in an attempt to maintain correction or prevent progress of a lumbar or dorsolumbar curve has proved of little value.

Of 18 cases in which spinal fusion was done because of pain in the back it resulted in complete relief in 15 and partial relief in 3.

Present treatment includes maximum correction before operation by means of a turnbuckle jacket with an anteroposterior hinge which provides a combination of head and pelvic traction with a complete lateral bend. To avoid any loss of the pre-operative correction at the time of operation the operation is now done through a window in the jacket. In short segments the fusion is accomplished in 2 operations and in very long segments in 3 operations. The patient remains in the corrective jacket for three months. After the removal of this jacket he wears a supportive jacket without traction for from three to nine months.

ROBERT C. LOVERGAN M.D.

Contargyris A. The Correction of Drop Foot by Posterior Arthrodesis. *J. Bone & Joint Surg.* 1931 xii 54.

This article is a report of the end results in twenty cases of drop foot operated upon by the Nove-Josserand method—eight in which the operation was performed by the author and twelve in which it was

done by Nove-Josserand. The Nove-Josserand method is a modification of the Campbell operation. It differs from the latter in that the scaphoid is not removed and the bone used for making the block posterior to the ankle joint is obtained from the os calcis by turning a bone flap backward from that bone at the posterior margin of its astragalarticular surface.

In eighteen of the cases reviewed the result was excellent and in two it was good. Even in three cases in which the bone block was fractured there was still a sufficient bone mass to form an efficient block. It is thought that this method of pedicle bone flap insures better results than other methods in which free bone transplants are used. Varus or valgus deformities are also corrected at the same operation by arthrodesis on the subastragaloid and mediatarsal joints performed as in other methods.

WILLIAM ARTHUR CLARK M.D.

## FRACTURES AND DISLOCATIONS

Speed K. Plaster Embedded Skeletal Traction Its Use in the Treatment of Fractures. *Surg. Gynec. & Obst.* 1930 li 85.

In certain types of fractures of the lower extremity in which the Steinmann pin is employed for skeletal traction Speed embeds the Steinmann pin in a plaster of Paris cast. In cases of fracture of both bones of the lower extremity in which it is difficult to maintain the fragments in proper alignment and position after correction of the shortening with the aid of the fracture table and the insertion of a pin through the malleoli or the calcaneus a plaster of Paris cast may be applied from the upper thigh down to and including the toes and incorporating the pin. After release of the limb from the traction on the table the relationship of the fragments remains as it was and the reduction is held without danger of plaster pressure on the soft parts. The pressure or pull being transmitted to the distal part of the leg through the pin by its skeletal grip.

Speed recommends the use of the plaster embedded skeletal traction also for fracture of the leg treated by open operation and for lipping fracture of the tibia with or without dislocation of the ankle.

RUDOLPH S. REICH M.D.

Speed K. The Blood Serum Calcium in Relation to the Healing of Fractures. *J. Bone & Joint Surg.* 1931 xii 58.

Experimental fractures were produced in dogs in which the calcium and phosphorus contents of the blood serum were changed by diet or gland disturbances. In the first experiment the calcium was reduced to about 9.3 mgm. the phosphorus to about 3 mgm. and the product (serum calcium per 100 c.c. serum phosphorus per 100 c.c.) to about 28 per 100 c.c. The animals in this experiment showed no clinical or roentgen evidence of delayed union.

In the second experiment fractures were produced in dogs with a high calcium and low phosphorus



content in the blood as the result of the feeding of calcium lactate. The animals showed no delay or acceleration of healing of the fractures.

In the third experiment in which parathyroidectomy was done there was a decided delay in bone healing after the operation.

In patients with fractures studies of the blood chemistry showed that immediately after the fracture the phosphorus content of the blood is low but the calcium content is normal. Within twenty-four hours the phosphorus rises but in from three to five weeks it comes down slowly whereas the calcium remains about stationary. Diet has little or no effect on the calcium or phosphorus content of the peripheral blood.

The author concludes from his findings that estimations of the blood calcium and phosphorus are of no value in the prognosis of the results in fractures.

WILLIAM ARTUR CLARK, M.D.

Janz G. The Healing and Late Results of Fracture of the Elbow in Children (Hilg and Spölg, *Arch. d. Ch. u. Orthopädie*) *Ch. u. Orthopädie* 838

This is a report of follow-up examinations in forty-two cases of fracture of the elbow in children. It included twenty-one supracondylar fractures, nine fractures of the lateral condyle, seven of the medial epicondyle, three of the neck of the radius and two of the olecranon.

In the cases of supracondylar fracture the best results were obtained from reposition under fluoroscopic control with the elbow flexed at an acute angle and fixation by a dorsal plaster splint. In old fractures a cast was applied to the olecranon was successful in spite of the formation of callus. As almost complete functional restoration is to be expected from conservative treatment, operation should seldom be undertaken. The adaptability of the bone in childhood is very great but it is important to begin active and cautious passive movements as early as possible. Massage should be avoided in the first few weeks because of the danger of myositis ossificans. The dreaded decubitus varus may be prevented by placing the forearm in semi-pronation.

In isolated fracture of the lateral condyle the epiphyseal nucleus of the capitulum humeri is usually involved; the radius extrudes the loose fragment and cubitus valgus results. Therefore operative reposition or extirpation of the fragment is advisable.

In fracture of the medial condyle no disturbance of the function of the joint is to be expected. Therefore operation is not necessary.

Fracture of the head of the radius is rare. If the head is removed, synostosis between the radius and the ulna is likely to occur; hence cautious operative reposition or conservative treatment is to be recommended.

Lesions of the nerves were not found in any of the cases reviewed.

In conclusion the author says that the prospects of healing are favorable in fractures of the elbow in children because the growing bone possesses great anatomical and functional adaptability. HOLTZ (Z)

Peabody C. W. Disruption of the Pelvis with Luxation of the Innominate Bone (H. S. G.) 1930 *x. Pt.* 971

This article is a report of eight cases of complete disruption of the pelvis with separation and displacement of one side from the other. In five cases there was separation with anterior displacement of the pubic symphysis and separation and displacement of one or both sacroiliac synchondroses and in the three others there were vertical fractures close to the pubic symphysis with rupture of the sacroiliac joint and upward displacement of the whole innominate bone. To date sixty-five cases of disruption of the pelvis have been reported in the literature.

The findings on which the diagnosis is based are complete helplessness, severe shock, great pain referred to the pelvis on movement, tenderness on palpation of the synchondroses and gross hypermobility of the pelvis to manipulation. Roentgenograms are necessary only to confirm the diagnosis.

Visceral complications are rare but fractures such as fracture of the transverse process of the fifth lumbar vertebra are not uncommon. Dislocation of the innominate bone has generally been attributed to a crushing injury but in a considerable number of cases has been caused by a fall.

Ankylosis of the sacroiliac synchondroses develops without complete reduction of the displacement. Although recovery frequently occurs without reduction, reduction seems necessary for complete freedom from disability and the prevention of scoliosis.

The treatment used by Peabody is as follows:

As soon as the general condition warrants the use of an anesthetic the patient is placed on a fluoroscopic table with the foot on the displaced side tied to the head of the table. After the induction of anesthesia the table is tilted nearly to the vertical position, the weight of the body being thereby suspended from the fastened leg. The pelvis is then very carefully manipulated between the hands until replacement can be seen with the fluoroscope and can be felt. A previously prepared web belt is then placed around the pelvis and buckled tight; the table is returned to the horizontal position, the traction is released and the position again checked with the fluoroscope. When rotary displacement is present the limb on the anterior side is held down while the opposite limb is extended at the knee is strongly flexed at the hip to lever the side of the pelvis forward. The patient is then replaced in the Bradford frame and the foot reattached to the end of the frame with the head inclined downward. To guard against relaxation in bed traction of 20 lb is maintained on the leg of the affected side. An overhead pelvic sling is applied for comfort.

Six of eight patients treated by Peabody recovered without any residual disability and with correction of all upward displacement of one side of the pelvis. In two the relations of the symphysis were not entirely normal and anatomical position at the points of fracture was not obtained. One patient died before treatment was begun.

Sciatic pain was not a marked symptom except in cases with a fracture of the lateral process of the fifth lumbar vertebra. RUDOLPH S REICH M D

Cutler C W Jr Fractures at the Condyles of the Femur *Ann Surg* 1931 vol 551

The author reports thirty eight fractures at the condyles of the femur. Eighteen were fractures above the condyles seven fractures between the condyles three fractures of the internal condyle five fractures of the external condyle and five separations of the condylar epiphysis.

We are reminded of the seriousness of such injuries not only as regards their menace to the future usefulness of the limb but also to the patient's life. Proper reduction and maintenance of the fragments in position after reduction are difficult. No one method of treatment is applicable to all cases. Because of the gravity of infection in injuries of this type every effort should be made to obtain reduction without operation. H EARLE CONWELL M D

Kennedy R H Fracture of the Shaft of Both Bones of the Leg *Ann Surg* 1931 vol 563

The author reviews 107 cases of fracture of both bones of the leg not involving the joint. In 13 cases the fracture was of the spiral type in 9 it occurred in the upper third of the leg in 35 in the middle third and in 50 in the lower third. About two thirds of the patients were between the ages of sixteen and fifty years. Sixty two fractures were apparently caused by direct violence and 45 by indirect violence. Thirty nine of the patients were injured in automobile accidents. Eighty of the fractures were simple and 27 were compound. Sixty were comminuted.

The treatment consisted of the use of a plaster of Paris splint in 70 cases traction by a Steinmann pin through the os calcis in 30 cases traction by ice tongs in 4 cases traction by adhesive plaster in 2 cases and open operation with the application of a Lane plate in 1 case. The position of the fragments was unsatisfactory in 11 cases treated with plaster and in 2 cases treated with ice tongs.

The average time the Steinmann pin or ice tongs were left in place was forty eight days. All pin and tong wounds healed promptly but in 2 cases late abscesses developed. In 40 cases callus was first noted in the roentgenograms after forty days. The average period before solid union was obtained was eighty four days in cases of spiral fracture ninety five days in case of fracture of the upper third of the leg ninety two days in case of fracture of the middle third of the leg and fifty seven days in cases of fracture of the lower third of the leg. Of the 27

cases of compound fracture gas bacillus infection occurred in 5.

Three patients died. Amputation became necessary in 3 cases. Non union is known to have resulted in 2 cases and probably resulted in 1 case. Solid union is known to have resulted in 92 cases. In 16 cases the patient was transferred to another institution too early for the end result to be known but the position of the fragments was such as to warrant the expectancy of solid union.

The time the patients receiving complete treatment remained in the hospital averaged sixty six days.

The author emphasizes the importance of thorough treatment in fractures. No single method is applicable to all types. The traction suspension method is no easier and requires no less training than the open reduction but is less dangerous when undertaken by a surgeon who sees a major fracture only occasionally.

Theoretically traction on the lower end of the tibia is preferable to traction through the ankle joint. However the author has given up the application of ice tongs in the malleoli in favor of the introduction of a Steinmann pin through the os calcis. He has not seen any loss of function or instability of the ankle joint which could be attributed to the prolonged pull through the ligaments of the ankle. H EARLE CONWELL M D

Lorenzetti C The Closed Method of Treatment of Fractures of the Ankle Joint *Arch St g* 1931 vol 1

Although Lambotte Lane and others advocate open reduction for fractures involving the ankle joint when there is much displacement the author believes that most of these fractures can be reduced with a good result by the closed method.

In the method used in the surgical clinic at the University of Milan from which this article comes the lower extremity is covered with a layer of absorbent cotton and a wooden splint (from 90 to 100 cm long 6 cm wide and 1 cm thick) covered with absorbent cotton is placed on the inner side of the extremity. The splint extends from the distal two thirds of the thigh distalward to 10 cm beyond the plantar surface of the foot. A large pad of cotton is then placed between the inner surface of the lower two thirds of the leg and the splint. The thickness of the pad is proportionate to the degree of the varus position desired. The upper part of the splint is fixed by means of bandages which below include the cotton pad. Considerable space is left between the foot and the splint. This is secured by the cotton pad. After manual correction of the gross displacement the foot is forced by means of bandages tighter and tighter against and over the inferior third of the splint so that it is in a marked varus position. In this way the lateral displacement is corrected.

It may not be possible and it is usually not desirable to obtain complete reduction at once. The

foot can be pulled further into an over corrected varus position the next day by rebandaging. Thus gradually the fragments may be brought back into normal position. When reduction is complete and the permanent dressing is applied the foot should be at a right angle (or as nearly at a right angle as possible) with the leg viewed laterally.

Posterior dislocation of the foot must be reduced before the foot is placed in the extreme varus position except when there is a wide separation of the tibia and fibula in which case the astragalus will pass more easily into position under the tibia if the varus is exaggerated temporarily.

In the treatment described by the author the temporary wooden splint is left on for from eight to twenty days depending upon the amount of swelling and the time required for reduction. A plaster cast is then applied with the use of very little padding.

Recurrent displacements after good reduction the most frequent of which is redisplacement of the posterior marginal fragment of the tibia are attributed by Lorenzetti to application of the cast before the oedema has subsided or the use of excessive padding under the cast.

In the treatment described the knee is usually left free and early motion is encouraged. After from thirty to sixty days depending upon the severity of the fracture the cast is removed and physical therapy is started. Roentgenograms are taken just after the application of the cast to determine the position and just after the removal of the cast to determine the amount of callus.

In one of 435 consecutive fractures of this type coming under the author's observation was open reduced and required. WILLIAM ARTHUR CLAR, M.D.

# Boehler I The Diagnosis Pathology and Treatment of Fracture of the Os Calcis J B & J 15 8 93 x 75

The diagnosis of fractures of the os calcis is aided by observation of the tuber joint angle. In a lateral roentgenogram a line along the proximal contour of the tuberosity normally makes an angle of from 30 to 35 degrees with a second line uniting the highest point of the anterior process with the highest point of the posterior articular surface. In fractures of the os calcis this tuber joint angle is diminished or even reversed. The treatment of such fractures must include restoration of this angle as well as correction of the broadening and shortening of the bone.

Boehler waits for from six to ten days for the swelling to subside before he attempts reduction. Under spinal anaesthesia a compression bandage is used to diminish the swelling further. Impaction is broken up by molding the foot over a wedge and manipulating it laterally. Traction nails are driven through the proximal posterior corner of the tuberosity of the os calcis and through the tibia four fingerbreadths above the ankle joint. Traction and countertraction are applied by means of freely turning stirrups and a screw extension device. A talus kinking shortening and part of the broadening are reduced by traction in the long axis and then posteriorly in the long axis of the calcaneus. The remainder of the broadening is reduced by temporary lateral compression with a special kind of vise. When the roentgenograms show good over correction of the tuber joint angle unpadded plaster incorporating the nails is applied with the foot in pronation and plantar flexion.

WALTER P. BLOUNT, M.D.

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Saito M. Kamikawa K. and Yanigizawa H.  
A New Method of Roentgenography of Arteries  
and Veins in the Living (Nouvelle méthode de  
radio-raphie des artères et des veines sur le vivant)  
*P. esse n. d. Par* 1930 xxx ii 1725

It has been found that the Moniz technique of sodium bromide injection for arteriography is some times followed by homolateral plegia or respiratory paralysis. Trials with sodium bromide and other solutions mentioned in the literature having been unsatisfactory the authors were led to a study of lipiodol emulsions.

The lipiodol emulsions tried are given the name ombre. Satisfactory results were obtained with Ombre P which is composed of lipiodol sodium acid protalbinat lecithin and glucose. To 25 gm of lipiodol and 0.75 gm of sodium acid protalbinat mixed in a mortar 10 gm of lecithin and a sufficient amount of 5 per cent glucose to make 100 ccm of emulsion are added. The protalbinat keeps the oil droplets at a diameter of 10 micra which is less than that of the droplets in other emulsions. Ombre P has a specific gravity near that of blood and a viscosity equal to that of blood. It is yellowish white. It causes no haemolysis and no coagulation. Quantities as large as 5 ccm per kilogram of body weight were injected into a cerebral artery of a dog without causing an irritative reaction, thrombosis or embolism.

For satisfactory X-ray study a large quantity of ombre must be injected through a large needle. The technique for cerebral roentgenography in the case of an arteriosclerotic patient includes the induction of local anaesthesia, the application of a clamp on the common and external carotid arteries (on the latter a little above the superior thyroid artery) and X-ray exposure during an injection of Ombre P into the superior thyroid artery. The thyroid artery may become thrombosed but not the carotid.

In the study of the vessels of the extremities not the main vessel but a branch is injected for examination in the arm the ulnar collateral artery and in the leg the external pudendal anastomotic magna or the middle or lateral superior genicular artery. In the leg the general circulation is stopped before the injection by clamping the femoral artery just above the site of entry of the branch to be injected. Veins are injected subcutaneously after the application of a rubber constrictor above and below the field to be exposed. The dosage depends somewhat upon the size of the vessels. From 7 to 10 ccm are used for the cerebrum and from 10 to 20 ccm for the arm or leg. The needle employed is from 0.75 to 1 cm in diameter. The second injection for a stereo-

gram is made through a slightly smaller needle but it is possible to make a stereogram with a single injection.

More than 100 patients of both sexes between the ages of two and sixty three years were watched for secondary effects. An abnormal sensation may be felt along the injected vessels but there is no pain. A pre-existing gangrene is not aggravated.

CURTIS NELSON M.D.

Warwick W. T. Valvular Defect in Relation to Varicosis *Lancet* 1930 ccviii 1278

In support of the theory that varicose veins may be caused by congenital valvular defects Warwick cites a group of experiments which he carried out on subjects under the age of varicosis and on young adults without obvious varicosis.

Drainage of the veins of the lower limb occurs mainly from the deep veins and the internal saphenous. Valve are so situated as to prevent back pressure into the superficial system. In contrast to the venous drainage of the leg that of the arm occurs superficially through a single trunk. The perforating veins connect the deep with the superficial veins and the different superficial veins. Part of the saphenous system empties through the perforating veins as well as through the main termination.

The flow from the deep to the superficial veins takes place in comparatively few cases. In the majority of the subjects studied who were considered normal valves were so arranged as to insure absolute efficiency of the venous return from the lower limb. Of twenty eight young subjects twenty five showed competence of the valves. In the remaining three incompetence of the valves in definite situations gave rise to definite types of varicosities.

On the basis of the location of the valvular incompetence the author distinguishes the following types of varicosities: (1) the congenitally varicose internal saphenous type in which there is leakage from the deep system to the internal saphenous vein alone; (2) the congenitally varicose external saphenous or calf muscle type in which the leakage occurs only in the muscular branches of the calf; and (3) the normal type in which there is no leakage.

According to Fabricius valves are normally situated in the superficial system just below the entrance of a tributary. Kosinski has shown that the superficial vein is valved below its junction with the important perforating veins. In the deep system the femoral valve near Poupart's ligament is important. The valve below the entrance of the deep femoral vein is said to be the most constant. The author has found that normally competent terminal valves guard the entrance of all of the superficial veins into the deep system. The external saphenous



The author conceived the idea that Hodgkin's disease might represent a peculiar type of tuberculosis in which the avian strain of tubercle bacillus is the chief etiological factor. Accordingly she carried out experiments in which emulsified material from a Hodgkin's node was given intravenously to chickens. All of the chickens developed either typical or atypical tuberculosis and in many of the tissue smears acid fast organisms were demonstrated. When guinea pigs were inoculated with tissue from one of the affected chickens, material obtained from the guinea pigs yielded a growth of bacteria with the staining and cultural characteristics of the avian tubercle bacillus. In subsequent tests in which emulsified material from Hodgkin's lesions was inoculated into chickens and guinea pigs the constancy with which tuberculosis developed in these animals strongly supported the theory of the etiological importance of the avian tubercle bacillus in certain clinical forms of Hodgkin's disease.

VERNE G. BURDEN, M.D.

**Warthin, A. S.** The Genetic Neoplastic Relationships of Hodgkin's Disease, Aleukæmic and Leukæmic Lymphoblastoma and Mycosis Fungoides. *Ann. Sur.* 1931, xcii, 153.

The author believes that Hodgkin's disease is a neoplasm related genetically to the lymphoblastomata of which both the aleukæmic and the leukæmic forms are identical pathologically and that mycosis fungoides is a neoplasm belonging to the same generic group. There are transition forms between all of the types. These conditions differ chiefly in the degree of differentiation of the cell types and the point of origin. They arise from perivascular reticulo endothelium or from the maternal lymphoblasts of the lymphoid tissues of the body. The former take on the type of Hodgkin's disease and the latter the character of lymphoblastoma.

The more undifferentiated forms such as Hodgkin's disease occur in young persons whereas the typical aleukæmic and leukæmic neoplasms are more frequent in older persons. All run a similar

clinical course characterized by fever remissions and recurrences of the tumors, progressive tumor cachexia, anemia, emaciation and prostration. No case has been cured. Surgical removal is followed by recurrence of the condition in the regenerated glands. The disease has a steady malignant progress to a fatal termination. The only treatment judicious and systematic, roentgen irradiation is merely palliative.

VERNE G. BURDEN, M.D.

**Auche, J.** The Neoformation of Lymphatic Glands (De la neoformation des ganglions lymphatiques). *Rev. de chir.* 1930, xlix, 350.

In one and the same group of lymphatic glands may be found typical glands, rudimentary glands and glands that have undergone involution. The rudimentary glands may acquire and the glands that have undergone involution may recover the appearance of typical adult glands and return to their former state again when the cause of their transitory evolution disappears. This fact is not generally recognized by persons doing experimental work. Meyer in 1906 and Vecchi in 1910 removed not only the typical glands but also the cellular adipose tissue of the region which contained rudimentary glands and glands that had undergone involution.

The author states that in experiments on guinea pigs he definitely demonstrated the neoformation of lymph glands after the anatomical removal of glands formed with the development of the animal. He concludes that the removal was the cause of the glandular neoformation. The adipose and loose connective tissue were not only the site but also the substratum of the neoformation, behaving thus like the mesenchymal cells from which the glands are formed in the embryo. The newly formed glands fulfill the functions of glands in general.

In man also new glands are formed from the adipose and loose connective tissue following the anatomical or functional suppression of the old glands.

The article is supplemented by a bibliography of about fifty references.

PAGE

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

DeM tel T Guillaume J nd Lassery M The  
Use of Bird's Muscle as a Hemostatic Agent  
(Lemph d mu l d omme g t hém  
st (q ) P d P 93 x 1 78

The problem of hæm stasis is very important in neurosurgery. Hæmorrhage is dangerous and both ersome a d the cause of post operative compli cati ns. Hæm rha ge into certain reg ons such as the medulla or the third ventricle especially dan ge ous. When it occu s into the subarachnoid spaces it may cause a thermal reaction from absorption of the blood corpuscles may obstruct the flo of cere bro spinal flu d by block ng the aqueduct of Sylvius or the f rami a f Luschka in l Magend e.

After a st dy of all f the meth d employ ed today for hæmosta s the a thors advocate the use of bird's muscle. Ordinary mechanical method such as ligat on and the use of a are satisfactory for superficial types of hæmorrhage but for deep hæmor rhage and fo nus bleed ng they are n t suitable ffor ley has suggested the use of a f agment of human muscle but the authors p efer heterogenous muscle obt ned prefe ably from a pigeon.

Attention s c lled to the fact that two distinct mech nisms a e n ol ed in the process of clotting. First the e is the development of the ferment thrombi hich results from the union of t o sub stances c nt ined in the blood—thrombogen and thrombokina se. The th mbuin then acts on the f b gen and ch nges it t fibrin. In mammals the plasm conta ns calcium salts th ombogen and hbrinogen and the platelets contain the thrombo kinase. In birds t the muscles which c tain the chief ing edients fo the formation of thromb n. The thrombogen is in the f lds of the muscle and the thrombokina se in the muscle sub tance. The efore in b ds the muscle tiss e is the agent for coagul tion. The autho s u se the muscle of the pigeon because this b d is read y obtaned and is arely the car ier of infections. The feathers are plucked from the ventral egion and a fe st ps of muscle are remo ed ith prec tions f rasepsis. The st ps are appl ed directly to the bleeding su face.

The auth s repo t their vepo ty satisfactory e pe riences with the use of such muscle st ps in the con trol of hæmo bage arising during neurosurgical operations. They ve fed its action e periment lly in six rabb ts in hich they made deep incisions in a lobe of the li er. Ord narily such inc ions ould have caused death but the int oduction of a st ip of muscle into the ound sa ed the lives of all of the animals. The usual hist logical reaction about a sterile g aft was found in the vicinity of the muscle

tissue. Two months after its insertion the muscle graft as completely abso bed and replaced by a f brous cicatrix.

The method described may be employ ed not only in neurosurgery but al o in general surgery. It is of value particularly after trauma to the liver spleen and kidney and for hæmostasis in bone and blood vessel surgery in which ordinary meeban cal method are found unsuitable. The authors hope that for mo e general use a stable serum or ti sue e tract may be made. J c B E K L 1 M D

## ANTISEPTIC SURGERY TREATMENT OF WOUNDS AND INFECTIONS

Alt na G Bacteriophage (H b t t fago) P l  
d l me r93 s prst 1773

D fferelle found in faces a f filtrable and ultra micro copic lytic principle hich when added to cultures of bacteria destro s them or inhibits their growth. Cultures of bacteria to which thi bae teriophage has been added show h les of vary ag sizes in which there is no gro th. Material taken from these defects in the culture reproduces the bae teriophage through various passages. Presumably the destructi e action of bacteriophage and the defensive force of bacteria usually balance each other or one or the other ould be destroyed. B c teriophages act only on l ing bacte ia and have a more intense action on young cultures than on old ones.

Bacteriophages show spec ificity not only for cer tain species of bacteria but al o for certain strains of those species. A bacteriophage th t kills one strain of colon bacilli may ha e no effect on another. Thi is the d fficulty that has presented itself in the use of the bacteriophage in therapeutics. The typho d bacillus for example sh ws m ny strains therefo e the bacteriophage used in typho d fever ould ha e to be specific for each special strain. Diffe nt strains of bacte iophage with different deg ees of specificity and v lence may be found in the same m terial. By us ng methods similar to those em ployed in bacteriology special strains of bacte iophage may be isol ted.

While the be t temperature for most bacteria is around 37 degrees that for the bacteriophage i lo er. Therefore at 37 degrees or above bacte i are more resistant to the act on of bacteriophages. The best reaction for bacteriophages is alkaline and the optimum deg ee of alkalinity is higher than that for bacteria. Bacteriophages a e ery v despread in nature. Their chief hab tat is the intestines of animals. The d ease in which they la e been used most successfully is bacillary dysentery. When active filtrates ha e been gi en by mouth they h ve

given excellent results in epidemics of this disease in various countries and have not only cured the persons to whom they were given but have attenuated the virulence of the epidemic.

The author suggests that bacteriological laboratories prepare different strains of bacteriophages for distribution to hospitals thus keeping this method of treatment out of commerce.

AUDREY GOSS MORGAN M D

Hansen J The Primary Treatment of Wounds  
(Die primäre Wundbehandlung) *Deutsch. Ztsch. f. Chir.* 1930 cccviii 17

In the treatment of the many fresh injuries seen daily at Bergmannsheil the basic principles established by Friedrich are followed. In the cases of miners who are injured during the day the incubation period of six hours is extended because of the well known small bacterial content of the soil. All wounds in the soft parts after being painted with dijonol are excised usually under local anaesthesia and carefully sutured in several layers without a drain or packing. If the wounds are very dirty or if they are open joint injuries they are irrigated with phenol camphor and tetanus antitoxin is administered. In clean injuries of the soft parts splints are not used. A dry dressing is applied. In wounds of the head and neck subcutaneous ligation of vessels is not done. The bony roof of the skull is carefully examined. Tendons are united with double silk sutures. In the lower extremity adequate relaxing incisions are made and the defects covered with Thiersch grafts. If the circulation is poor (varicose veins) the leg is handaged and elevated. In injuries of the fingers and toes primary amputation is often done for social indications if a good stump covering can be obtained.

One thousand cases are reviewed. Complete non-secreting cohesion of the wound edges within seven days is considered primary healing. This is achieved in almost 100 per cent of the head injuries. Injuries of other superficial parts of the body also have a very high percentage of primary healing. Naturally the healing depends upon the time that the treatment is instituted. A number of cases are cited in which treatment was delayed and the wounds took a correspondingly longer time to heal.

C E JANGLE (Z)

Felsenreich F The Results of Essentially Operative Treatment of Wounds (Ueber Ergebnisse primär-operativer Wundbehandlung) *Monatsschr. f. Chir.* 1930 i 961

The author reports the results of the technique of wound treatment employed in the Hohenegg Clinic—mechanical disinfection of the wound area. His material included about 2,000 wounds occurring in various parts of the body which were treated in the accident station in the period from 1927 to 1929. Seventy per cent of the wounds were lacerations and most of the latter were contused lacerations.

As a rule all wounds less than twenty-four hours old are treated operatively whatever the degree of contamination. Primary healing is obtained in from 96 to 98.7 per cent except in amputations in which its incidence is 80 per cent. The successful results are attributed to the carefully developed technique which includes purely mechanical disinfecting procedures. The results are exactly as good as those obtained with combined mechanical and chemical treatment.

The operative field is carefully shaved, cleansed with benzine and alcohol and painted with 5 per cent tincture of iodine. Local or regional anaesthesia is then induced. Very careful cleaning of the operative field is done again with benzine and alcohol. A second application of iodine is made and in badly soiled wounds mechanical cleansing of the margins with scissors and scalpel is carried out. Then with fresh instruments wound excision is done with auxiliary incisions if necessary and with the greatest possible preservation of the skin. Even if some of the skin is cast off as a crust the underlying tissue has had time to regenerate. Primary skin plastics are done only when joints or tendons must be protected. By sliding flaps or by lateral mobilization of the skin edges it is usually possible to suture without tension. Often a rectangular tension suture placed at a distance from the wound aids in approximating the skin flaps for suture. Fat and muscle which are particularly susceptible to infection are removed back to freshly bleeding zones. Tissues which cannot be radically removed (tendons, nerves, joint capsules) are cleansed without injury by the injection of salt solution. Buried ligatures are avoided as they may readily lead to insidious infection like wise sutures of joint capsule and extensor tendons. Suturing of fascia and muscle is also avoided so far as possible. In the latter structures the slightest inflammation caused by a foreign body leads to adhesions between the skin and the scar. Bursae are excised as they lead to fistula formation and infection. All forms of drainage are avoided with the exception of very thin drains used for from twelve to sixteen hours. A well fitting pressure bandage is preferred. Strips and wicks delay wound healing for at least two or three weeks.

As primary healing requires absolute rest of the injured region immobilization of all parts involved by the wound is essential. In certain cases of wounds of the extremities this is obtained by means of an unpadded plaster bandage with or without windows which is applied directly to the skin. The parts nearest the wound being protected by sterile Billroth cambric. This bandage produces perfect support and furnishes a point of attachment for suspending the injured limb. Also of value is open treatment in which the sutured wound is painted with iodine collodion and exposed to the air protected only by a gauze cover. In cases of wounds of the hand and fingers free extension or suspension of the part by means of a clamp nail or wire is sometimes employed to eliminate painful changing of dressings.



In the mouth the rich blood supply insures good healing of wounds in spite of the great danger of infection but sponges are placed between the gums and lips and changed every two hours to keep the wound dry. For the suturing of mouth wounds the finest silk is employed because the swelling of catgut sutures will dilate the wound and may thereby lead to infection. In head injuries a pressure bandage is applied for three days and the wound then treated openly in the same way as a wound of the skin of the face. Bites of animals are also treated in this manner of twenty one cases suppuration occurred in only 5 per cent.

The purely mechanical treatment of wounds without the use of disinfecting agents has so completely met all expectations that nothing better could be expected of a combined method. However it should be used only by the experienced surgeon not the general practitioner. Severe injuries requiring this treatment should unconditionally be referred to a hospital or accident station as otherwise the method may become discredited. STR. ISSLER (Z)

### ANÆSTHESIA

Blancalanca L. Clinical and Experimental Study of Certain Disturbances Associated with Spinal Anesthesia (Rice H. Inche. p. m. t. l. s. u. t. l. d. t. b. h. m. p. g. o. i. a. r. e. h. e. s. t. e. s.)  
11 11 d h 93 1 60

About twenty minutes after the puncture for spinal anesthesia is made there may be nausea, vomiting, and respiratory and circulatory disturbances. Respiratory syncope is rare. By some it is attributed to an effect exerted by the anæsthetic on the medulla. The author has never seen serious respiratory disturbances in his cases. The fall in the blood pressure is sometimes great enough to cause marked disturbances in the circulation and even collapse. With regard to the anæmia of the medulla which is responsible for these disturbances the two theories according to one this anæmia is brought about by the direct action of the anæsthetic on the higher centres. According to the other it is due to the low pressure produced by vasodilatation from paralysis of the vessels in the anesthetized zone. Those who accept the first theory point out that there is no great fall of the blood pressure when the action of the anæsthetic is limited to the lumbar tract whereas when this action extends to the thoracic roots there is apt to be marked hypotension. Those who accept the second theory cite the favorable effects of the Trendelenburg position in support of their belief.

The author performed experiments on dogs in an effort to settle this question but his results were not absolutely conclusive. He believes that it is possible for the anæsthetic to rise to the medulla but that while the amounts might be large enough to disturb the higher centers they would not be sufficient to paralyze them. If the injection is made into the thoracic spaces the possibility of upward diffusion is

greater. The great individual differences in sensitivity to anæsthetics are shown by the disturbances that sometimes occur after ordinary local anesthesia when only a very minute amount of the anæsthetic could possibly reach the medulla.

The good effects of the Trendelenburg position do not prove the theory that the anæmia is secondary for this position does not greatly increase the amount of anæsthetic that reaches the medulla and it puts the higher centers in a condition of greater resistance to the anæsthetic. Apparently however the anæmia of the medulla is due in most cases to the lowered blood pressure. The low pressure shows the characteristics of low pressure from vessel collapse rather than that of heart collapse and is not affected by cardiac stimulants. There is generally no great change in the rhythm of the heart and the pulse becomes small because less force is required to overcome the resistance of the circulation. The Trendelenburg position is helpful as in all cases of anæmia of the central nervous system because it increases the blood supply of the medulla.

The greater the upward diffusion of the anæsthetic the greater the chance of a low blood pressure and disturbances of the medulla. Therefore all manipulations which tend to cause upward diffusion of the anæsthetic should be avoided. There should be no preliminary evacuation of spinal fluid or not more than 2 or 3 cm. should be removed at the most. The anæsthetic should not be mixed with more than a few cubic centimeters of spinal fluid and the injection should be made slowly. The patient may be put in the Trendelenburg position a few minutes after the puncture but the change should be brought about gradually so as not to cause rapid displacement of the anæsthetic.

In the treatment of disturbances of the medulla rapid and deep inspirations and the inhalation of oxygen, nitrous oxide and a few drops of ether are of value. The preliminary injection of adrenalin will help to prevent low blood pressure.

ANDERSON, M. O. CAN. MED.

Melner E. The Induction of Anesthesia with Avertin and Pernecton (Ubr. E. l. i. n. d. i. n. g. d. i. s. s. e. r. t. a. t. i. o. n. ) D. I. H.  
d. II. f. h. 93 736

In recent times psychogenic shock has been recognized as an unfavorable effect of anesthesia and attempts are being made to eliminate or decrease this danger by new anæsthetic procedures or the introduction of the so-called basic anesthesia. The author has conducted experiments with avertin and pernecton. Many have come to the conclusion from their experiences with rectal avertin anesthesia that avertin should be used only as a basic anæsthetic. In numerous cases sufficient analgesia for the intended operation is obtained merely by such a basic anesthesia without the supplementary use of ether or ethyl chloride.

The contraindications to the use of avertin are parenchymatous diseases of the kidneys and all

affections that lead to diseases of the kidneys such as sepsis. For this reason a careful test of renal function is necessary in every case before anaesthesia is induced. Hepatic diseases also constitute a contra-indication to the administration of avertin because the avertin is excreted from the body through the bladder combined with glycuronic acid and its detoxication depends chiefly on the liver. Avertin should be avoided also in all interventions that cause an acute diminution of the respiratory volume or the pulmonary surface such as phrenic exeresis and extensive thoracoplastics.

In the cases reviewed by the author the amount of the anaesthetic used as an adjunct was usually less than that which would probably have been necessary without the use of avertin but striking differences were noted in only a relatively few instances. Melzner did not observe any asphyxia but a considerable decrease in the blood pressure occurred especially when great insults such as traction on the viscera or very extensive incisions in the soft parts were inflicted on the anaesthetized patient during the operation. As such decreases in the blood pressure do not occur when ether is administered alone it must be assumed that avertin diminishes the ability of the organism to withstand the operation considerably more than ether. The decrease in blood pressure is always relieved by the injection of ephedrin. According to the statistics of Nordmann the mortality of avertin anaesthesia is about the same as that of chloroform anaesthesia and about twice as high as that of pure ether anaesthesia.

According to the results of the author's investigation the problem of ether anaesthesia is based upon (1) the insufficient and particularly uncalculable soporific effect of avertin (2) the slight difference between the minimal dosage inducing sleep and the dosage causing noteworthy disturbances and (3) the fact that up to the present time we know of nothing that will nullify the effect of avertin after it has entered the body.

The soporific effect of avertin depends upon resorption. If the avertin reaches the blood in sufficient concentration from the very beginning sleep ensues under all circumstances. With rectal administration the concentration in the blood depends upon resorption through the intestinal mucous membrane.

Attempts to increase the difference between the minimal soporific dose and the dosage at which quite considerable disturbances may become evident showed that the withdrawal of sodium and potassium salts the administration of potassium salts and finally the entonization of the calcium blood content were successful. In patients who were prepared in this manner (these patients were given a salt poor diet and small amounts of carbonated water on the day before the operation and an intramuscular injection of 2 c cm of 20 per cent neutralized potassium phosphate immediately before the operation) the rapid onset of the sleep was striking. Considerably less ether was necessary than in pure ether anaesthesia and in no case was there a considerable decrease in the blood pressure. Altogether 41 cases were treated in this way.

With regard to the possibility of nullifying the effect of the avertin that has entered the body the author says that release of the intestinal injection and the administration of carbon dioxide would probably not be sufficient in serious disturbances.

Melzner believes that in the induction of anaesthesia by the intravenous injection of avertin as recommended by Kirschner the psychic trauma is increased by the complicated technique. On the other hand the uniform quiet sleep beginning within a few seconds is of advantage. There are no failures or accidents. However this intravenous sleep lasts only five minutes and the amount of ether necessary with increasing duration of the operation increases disproportionately when compared with the amount used in the rectal administration of avertin. In most cases the amount may equal that used in pure ether anaesthesia. The body seems to be unable to maintain a definite concentration of avertin in the blood as it does in rectal anaesthesia.

On the other hand pernocton has the great advantage that it is used when only a slight soporific effect is desired. Furthermore the technique is very simple. From 4 to 6 c cm are injected very slowly through a 10 c cm syringe for from three to five minutes until the patient falls asleep suddenly and without excitation. With more rapid injection the effect is not so good. The supplementary amount of ether that is used is strikingly small. Therefore pernocton is preferable to avertin as a basic anaesthetic. BONE (2)

# PHYSICO-CHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Hirkin B R and Morton S A Roentgenological Changes in Sarcoma and Related Lesions  
Radiology 93 38

The disease known as Boeck's sarcoid is characterized primarily by the formation of nodules in the cutaneous and subcutaneous tissues. The skin over these areas has a telangiectatic appearance. The distribution of the lesions and the histological picture are distinctive.

Various theories have been advanced with regard to the etiology of this disease. By some the condition has been ascribed to the bacillus of tuberculosis. In the opinion of others it is a separate disease entity according to a third group it is due to several factors.

In certain cases the bacillus of tuberculosis has been isolated from the lesions in the skin and in many definite tuberculous lesions have been found. In other cases there is no evidence of tuberculosis and even the tuberculin test is negative. The fact that general lymphadenopathy sometimes occurs suggests that the condition may be related to lymphoma. The favorable results reported in certain cases following treatment with the roentgen rays tend to substantiate this view.

As Boeck's sarcoid with visceral involvement is seldom fatal pathological descriptions of the visceral lesions are meagre.

While the questions of etiology and the relation of the various types of sarcoid to one another are for the dermatologist to settle it is important for the roentgenologist to know that the condition is associated with more or less characteristic roentgen changes in the bones and lungs.

Sarcoidosis is a systemic involvement, apparently a disease of adult life since in thirty cases of sarcoma lesions of the lungs or bone reported in the literature the average age is thirty six years and practically all of the patients are more than twenty years old. Men and women are equally affected. The disease often has a fairly acute onset and later lapses into a chronic state. Lesions in bone tend to progress but if the disease is arrested the appearance of the bones may return almost to normal. When the condition is not arrested considerable permanent loss of bony tissue results.

The roentgenological changes are usually found in the phalanges of the hand but often are noted also in the phalanges of the foot. Changes in the lower end of the radius and ulna about the elbow joint and even in the body of a vertebra have been described. The disease of the bone seems to be evidenced first by thickening of the trabecular architecture in the end of one of the phalanges of a

finger. Small punched out areas appear and later there is a peculiar combination of bone destruction and repair. Clear cystic areas varying from spaces the size of a pin point to spaces 1 cm in diameter appear. The small trabeculae between the broken down areas are dense and sclerotic. The whole phalanx may be affected. While the bone may return almost to normal if the process is arrested and healing occurs considerable mutilation usually results. There is no generalized atrophy of bone in the affected hand and but little localized atrophy of the distal bone. Sequestration of the diseased part does not occur and there is no accompanying periostitis. The adjacent joints are not involved. The shaft of the affected bone may show slight uniform enlargement but the cortex is rarely broken.

Tuberculous dactylitis or spina ventosa is seen most frequently in the hands of children. Periostitis and atrophy of bone are marked. Sequestra and discharging sinuses are common.

Syphilitic disease of bone particularly of the congenital variety sometimes affects the phalanges. The lesion is then found more often in the diaphysis than in the head of the bone. Periostitis precedes and the cortex is thickened.

Malignancy is ruled out by the multiplicity of the lesions and the fact that the cortex is not broken.

Chondromatosis usually causes much more enlargement of the bone and is associated with definite tumors.

The roentgen ray findings in the lung in cases of sarcoid include a bilateral fairly dense diffuse linear infiltration of the middle or the lower half of the lungs extending from the hilum well out to ward the periphery. The infiltration may be so dense as to obscure the borders of the heart. Superimposed upon this area are many discrete opaque areas ranging from milky nodules to areas perhaps 1 cm in diameter. The apices of the lungs are not affected. Signs of pleurisy or fluid are absent. In some cases the nodes at the hilum are not enlarged but in other enlargement of these nodes is a distinct feature of the roentgen ray appearance. The picture in the individual case varies according to whether linear infiltration or scattered nodules prevail.

The condition must be distinguished from other chronic conditions of the lungs. It has some of the characteristics of old fibrous tuberculosis. Pneumomycosis resembles it more closely but in the latter condition the nodules are more definite and more numerous and there is not such a background of linear striations. Although the sarcoma lesions in the lungs do not have a tendency to form cavities and are more diffuse than those of bronchiectasis of the usual type the differential diagnosis between the two conditions is often difficult.

Kirklin and Morton report six cases of Boeck's sarcoid with visceral involvement—two with changes in the bones and lungs, two with changes in the bone and two with changes in the lungs.

**Herendeen, R. E.** Results in the Roentgen Ray Therapy of Giant Cell Tumors. *Ann. Surg.* 1931, vol. III, 398.

This article is a review of cases reported by the author in 1924 which indicated that roentgen therapy will cure the majority of giant cell tumors of bone and in many instances is superior to the standard surgical methods of treatment. Herendeen's purpose is to compare his previous statements with the information available regarding these cases today.

In most of the cases studied the neoplasm was undoubtedly a benign giant cell tumor, but in some of them subsequent findings seemed to indicate that it was a giant cell sarcoma or malignant giant cell tumor. The author discusses the differential diagnosis of these tumors briefly with particular reference to the cases under consideration. In Case 1 of the series in which the neoplasm was believed to be a typical giant cell tumor and responded well to roentgen therapy, other bone tumors subsequently developed in new sites. The latter also responded well to irradiation and were apparently metastases. The author believes that the primary neoplasm was

a giant cell sarcoma or malignant giant cell tumor. In Case 2 a typical giant cell tumor of the head of the fibula has remained cured after seven years. In Case 3 a recurrence after operation in the distal end of the radius has remained cured after five years. In Case 4 an atypical involvement of the os calcis has remained cured for six years. In Case 5 an inoperable tumor of the pelvic bone of doubtful nature responded well to roentgen therapy and has remained cured for ten years. In Case 6 a giant cell tumor in the lower end of the femur has remained cured for six years. In Case 7 a less characteristic lesion in the same location also reacted favorably to roentgen ray treatment.

The technique used is discussed briefly. The author emphasizes that there is no standard method of irradiating these tumors and that the amount of irradiation and the method of delivering it vary with the case. Frequently it is safest to determine the radiosensitivity of the neoplasm first by a test dose. Massive high voltage doses are seldom necessary.

The author believes that in the cases reviewed sufficient time has elapsed and the number and variety of the tumors was sufficiently large to warrant the conclusion that the optimistic statements made in his previous article were fully justified.

ADOLPH HARTUNG, M.D.

# MISCELLANEOUS

## CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Leriche R. *Researches and Critical Reflections on Pain: the Mechanism of Its Production and the Pathways of Pain Sensibility* (Reche che et eff en rtiq es ul do leu s e mfa sm s d prod t n t s le oes d l s blit d u loure ) *Pr s e m d P* 931 v 1

The author presents a rather lengthy dissertation on the nature of physical pain the peripheral anatomical structures and their changes associated with pain the mechanism of the production of pain and conscious and unconscious sensibility. The discussion is chiefly a series of reflections doubts and questions from a philosophical viewpoint on the question of pain. Attention is called to the fact that pain does not exist in the normal individual nor in the plan of nature as an end in itself. It is difficult to consider it in the same category with such physiological factors as tactile sensibility and thermal sensation. If pain is not a physiological sensation but the result of an accident it is impossible to have a special anatomical pathway for conducting the sensations to the brain. Pain is not an entity. In his logical examinations of certain areas of the skin in which the painful areas had been mapped out previously Foerster found no structure in the central system which might be a special receptive apparatus for pain. In discussing the relation of tactile sensation and tactile end organs to pain Leriche calls attention to the fact that varying degrees of tactile sensation may result in pain. After choriotomy pain sensation is lost but tactile sense is preserved. In time the pain sensations gradually return. No degeneration had been observed in any of the nerve tracts which might indicate a special pathway for pain sensations. It is a curious paradox that the points of pain are more numerous than the tactile areas which are more common in every day sensations. On the basis of the findings after choriotomy and a study of the nerve structures in the periphery and in the spinal ganglia the author rejects the possibility of distinct ones between the sensation of touch and that of pain.

With regard to the mechanism of the production of pain Leriche reminds us that there are physical chemical and circulatory changes in the painful tissues. He discusses paradoxical mechanisms of pain pointing out for example that the dentine has no nerve tissue and yet may be excruciatingly painful. He discusses the unconscious visceral and vascular reflexes and calls attention to a few paradoxes. Normally the vascular endothelium is devoid of painful sensations but when barium chloride is injected into an artery of a sleeping dog there is a pronounced painful reaction.

In conclusion Leriche quotes from Morat to the effect that hitherto physiology has been occupied with scientific rigid physical investigations in which such problems as sensibility have not been considered. In the living movement is dependent on sensibility and sensibility on movement.

JACOB F. KLEIN, M.D.

Hebrant. *The Climatic Treatment of Surgical Tuberculosis* (A propos du traitement climatique du tuberculose chirurgicale) *Bull. Méd.* 193 1367

It has been widely taught that surgical tuberculosis should be treated either in the mountains or at the seashore. In central Europe patients are usually sent to the mountains while in France and Belgium they are usually treated in sanatoria built on the coast.

It is of some importance from the social standpoint to know whether or not this practice is justified. The unfavorable psychic influence of a prolonged stay in a sanatorium far from home is well known. In the cases of children education is neglected and the parents are prone to lose sight of their responsibilities.

In a study of the writings of those who regard climotherapy as a specific the author was unable to find an explanation for the beneficial effects. The improvement has been ascribed to radioactivity of the sea water the reflection of light of short wavelength by the sands and ionization of the air but none of these theories has been proved. In any case the principal factor is the sunlight and it has not yet been established which rays the infrared or the ultraviolet are beneficial. Furthermore it has not been demonstrated that the sunlight in the mountains is more rich in ultraviolet rays than is the sunlight on the plains.

According to some authorities the change of climate is beneficial as it appears to stimulate the organism. With time however this effect is gradually lost. Other factors must be considered such as the effect of exposure of the skin to the air and sunlight which is said to increase metabolism some times as much as 40 per cent.

All of the conclusions cited are largely speculative. The author finds that the results obtained at ordinary altitudes (Hohenlyshen Bad Elter statistics of Kish and Kohler) compare very favorably with those of the Swiss sanatoria (Rollier). Vulpis believes that his results are in every way comparable with those obtained in the mountains or at the seashore.

In France the only inland sanatorium is near Paris. The director has found that the patients do quite as well there as at maritime establishments.

In the opinion of the author the manner of treatment of surgical tuberculosis is more important than the place and the social and economic advantages of treatment near home are obviously very great

ALBERT F DE GROAT M D

**Sugiura K. The Influence of Extracts of the Suprarenal Cortex on the Growth of Carcinoma Sarcoma and Melanoma in Animals**  
*Am J Cancer* 1931 v 129

In previously reported investigations the author found that the development of small malignant tumors in animals was completely inhibited by repeated intratumoral injections of suprarenalin but that repeated subcutaneous injections of suprarenalin at a point distant from the tumor failed to exert an inhibiting influence upon the growth of carcinoma and sarcoma. He concluded that the destructive action exerted by suprarenal cortex extracts on neoplasms is due to a marked vasoconstrictor power.

Some investigators have thought that removal of the cortex of the suprarenal retards tumor growth and improves the general condition of the patient.

This article reports studies of the effect of suprarenal cortex extracts upon transplanted carcinoma sarcoma and melanoma in rats mice and chickens.

Single or repeated subcutaneous or intramuscular injections of an alcoholic ether aqueous or glycerin extract of the cortical adrenal tissues had no apparent influence upon the growth of transplanted tumors. Similarly injections of substances causing a fall in the blood pressure such as choline and the feeding of sodium nitrate failed to show any inhibiting effect upon the tumor growth. A periodic fall in blood pressure in the animal did not play a role in cancer resistance. Fresh sheep suprarenal cortex or its extract failed to destroy cancer cells *in vitro*.

HARRY C. SALTZSTEIN M D

**Handley W S. The Role of Lymph Stasis in the Genesis of Cancer** *Ann S Rg* 1931 xciii 68

Handley advanced his lymph stasis theory of cancer in 1926. Recent evidence seems to show that a papilloma or adenoma is the precursor of carcinoma of every variety. The growth of the papilloma is due primarily to an obstructive lymphangitis of the lymph vessels. This lymphangitis may be due to any form of chronic irritation physical chemical parasitic or bacterial. The nature of the cancer produced does not vary with the nature of the irritant employed. The irritant affects only the environment of the cells which become cancerous.

The author presents evidence to show that the common wart the simplest form of papilloma is due to an infective lymphangitis. In ten out of eleven warts sectioned for microscopic examination he found unmistakable evidence of a proliferative lymphangitis. Axial lines of granulation tissue were seen in the center of the papillae. Handley presents four photomicrographs of warts which support his theory.

MANUEL E. LICHTENSTEIN M D

**Mayo W J. Susceptibility to Cancer** *Am Surg* 1931 xciii 16

The incidence of cancer in various countries which compile reliable statistics is about the same not only as to population ratio but also as to sex although the organs or tissues which are most susceptible to the disease vary considerably. Where as 30 per cent of cancers in the female involve the breast and the uterus about 30 per cent of those in the male involve the stomach and the organs of the urinary system.

Cancer never develops in sound tissues. Chronic irritation by opening up an atrium for the possible entrance of micro organisms to the body from the outside seems to suggest an external agent. This does not explain why cancer develops in certain cases in which the sources of chronic irritation are very slight and does not develop in other cases in which the sources of chronic irritation are very extensive for long periods of time. It is difficult to explain the fact that when cancer has extended by metastasis to a new situation it produces the histopathological picture of the tissues in which it originated rather than that of the organ which became affected secondarily. If the disease were due to a foreign invader it would presumably reproduce the type of cells of the newly invaded tissue rather than that of the primary seat of the tumor.

A fact of supreme importance which has not been sufficiently stressed is that individuals vary in their susceptibility to the cause or causes of cancer whatever they may be. In no other way can we explain why 90 per cent of persons do not have cancer and 10 per cent die from it. It is as logical to accept the hypothesis that the former have greater resistance to cancer than the latter as to attempt to force an explanation that only 10 per cent come in contact with the hypothetical causative agents which produce cancer.

The stroma about the cancer cell is the measure of the body's resistance. The greater the amount of stroma and the less the proportion of cells the slower the growth. Also the greater the proportion of cells and the less their resemblance to the normal tissue involved the more rapid the growth. All there is to cancer is contained within the malignant cell which has a remarkable resemblance to the rapidly growing embryonic cells of the chorionic villi (Langhans cells). Langhans cells have extremely large nuclei and undergo the most rapid division of any normal cells in the body but the nucleolus and the cytoplasm of the cell have no peculiarity of structure.

Wilson MacCarty and Broders have enlightened us greatly with regard to the histological character of the cell in relation to malignancy upon which Broders' classification of the malignancy of tumors has been based.

The studies of Murray on tar painting those of Gye and Barnard on the transplantation of the Rous fowl toxin the work of Slye on cancer in mice and that of Bowing and Desjardins on the effect of

radium and the X rays in lessening the malignant character of the growth all suggest that local and general susceptibility is perhaps the controlling factor in the genesis of malignancy and that the possibilities of increasing resistance to cancer in more susceptible individuals is not only a possibility but a goal which every effort must be made to reach

Warthin A S The Heredity of Cancer in Man  
A J J Med 1931 1 63

Warthin believes that the importance of heredity in the etiology of cancer has not been sufficiently emphasized. He reviews the family histories in a number of cancer cases and cites the multiple incidence of neoplasm in certain families. There is a tendency for the carcinoma to be localized in certain organs or systems. There is also frequently a sex limited inheritance. Frequently there appears an associated predilection to tuberculosis. The impression is obtained that the carcinoma develops at an earlier age in the later generations. In some families the cancer factor is a dominant inheritance and in others a recessive inheritance.

The available evidence indicates (1) a constitutional susceptibility to neoplasm and (2) a local organ predisposition to cancer. Instances of identical neoplasms attacking the same organs in identical twins are known.

The conception of mendelism which led Stiles to regard inheritable tumor susceptibility as a simple recessive unit character is all too primitive. The possibilities of inheritance in the almost endless combinations that may result make the inheritance of carcinoma in man impossible to predict. Heerthles Warthin believes that four factors are involved: a) genes the normal constitutional resistance to blastoma the pathological blastoma constitution the normal resistant organ or tissue make up and the pathological organ predilection to cancer. He concludes that it is logical to apply preventive measures of eugenics in the practical consideration of this problem. NA HAN & CROHN MD

Hilfman F L Cancer and Smoking Habits  
J S G 1931 5

From a review of the literature and statistics regarding the relationship between cancer and smoking Hoffman draws the following conclusions:

1 Smoking unquestionably increases the liability to cancer of the mouth, throat, esophagus, larynx and lungs.

2 The change in the cancer death rate during recent years has not been at all disproportionate to the enormous increase in cigarette smoking which has replaced the older and unquestionably more injurious method of smoking.

3 The problem is complicated by other factors particularly syphilis and defective dental conditions. In the absence of these factors smoking is much less likely to result in cancerous affliction.

4 The increase in cancer of the lungs is probably accounted for in part by cigarette smoking and the

inhalation of cigarette smoke. The latter practice unquestionably increases the danger of cancer development.

5 Moderation in smoking is advisable. The use of cigarette holders and cigar holders of a high degree of conductivity probably increases the liability to cancerous affections.

6 The air pollution due to smoking may injuriously affect non smokers.

MAULE & LCHENSTEIN MD

Neslund J Multiple Primary Malignant Tumors  
(Uber multiple primäre maligne Tumoren)  
Acta histog. Scand 93 437

The author reports a case seen at the Gynecological Clinic at Upsala in which autopsy performed thirteen years after a radical operation for cancer of the breast disclosed no evidence of recurrence on the side operated upon but showed a cancer in the other breast and an adenocarcinoma of the right ovary with metastases throughout the abdomen.

He reports also a case of hydronephroma of the kidney associated with a tumor of the ovary which resembled grossly and to some extent also microscopically a cystadenocarcinoma. The ovarian tumor was at first believed to be a cystadenocarcinoma but as renewed study of the microscopic slides revealed a picture agreeing to a certain extent with that of the renal hypernephroma it may possibly have been a metastasis of the latter. However it was very different in both appearance and structure from the other metastases.

Cle G W TJ Treatment of Malignancy  
J S G 1931 5 99

Cle reviews the method employed in the Cleaveland Clinic in dealing with cancer of various tissues. These methods are based on 390 cases of malignancy.

With regard to cancer of the external parts he states that so far as he is aware no case of cancer developing on normal uninjured skin has been observed. He calls attention to the fact that especially the skin of the face offers a better opportunity for the study of the development of cancer than any condition induced in the laboratory. Skin cancer is always preceded by a precancerous stage: a keratosis, a mole or wart or a benign tumor or ulcer. In cases of cancer on the buccal surfaces there is usually a history of trauma from a rough tooth or of leukoplakia or a fissure.

Since cancers obey one general law of growth, cancer of the inner hidden parts doubtless follow the same course as cancers of the skin. We must conclude therefore that internal cancers have their precancerous stages such as chronic irritation and ulcerative benign growths. In the larynx the precancerous state may be a syphilitic ulcer or a papilloma in the stomach a chronic ulcer in the gall bladder irritating gall stones and chronic inflammation in the large intestine and rectum ulcer and irritation from various sources in the breast chronic inflammation

mation benign tumors of certain types and senile changes in the uterus the irritations of pregnancy senile changes and benign growths and in the kidney and bladder stones and benign growths

Not all precancerous conditions of the internal organs are amenable to treatment

When the precancerous stage has passed complete removal of the growth—by excision or by  $\lambda$  ray or radium irradiation—becomes the only safe procedure

*Skin* Experience in the treatment of 629 cases of carcinoma of the skin and subcutaneous tissues at the Cleveland Clinic has led to the conclusion that radium irradiation is the most efficient treatment for this condition except in cases of pigmented moles. In the latter excision should always be done

*Jaws and buccal surfaces* Cancer of the buccal surfaces demands complete removal of the glands of the neck on both sides. In early cases of cancer of the jaws a less radical operation is sufficient as this condition metastasizes slowly and usually only on the side of the lesion. In advanced cases however a wide regional block dissection is indicated. A plate of underlying bone should be removed with the growth

Early cancer of the lip is usually treated successfully with radium. Early cancer of the tongue or of the buccal cavity may be treated by irradiation or electrocoagulation. In advanced cancer of the lip or tongue the lesion should be excised and the lymphatic glands of the neck removed by wide block dissection

Crile emphasizes that while irradiation of the local lesion may be indicated irradiation of the involved lymphatic glands of the neck should never be done as it cannot be depended upon. If the glands of the neck have been irradiated and the patient has recovered we must conclude that the glands of the neck were probably not involved. After operation on any part of this field treatment with deep accurately measured  $\lambda$  ray or radium irradiation is of advantage. Handling of the carcinomatous tissue should be minimal and every effort should be made to prevent the implantation of cancer cells in the operative field

*Larynx* Cancer of the larynx calls for laryngectomy. This is one of the most successful operations for the permanent cure of cancer. In the larynx as nowhere else in the body except in visible parts the presence of cancer is evident in its earliest stages. Moreover in intrinsic cancer of the larynx there is practically no lymphatic involvement as the cancer cannot penetrate through hyaline cartilage. There is no other situation in the body in which cancer is manifested immediately and from which it cannot be disseminated into the lymphatic glands. Post operative  $\lambda$  ray irradiation may be of value as it may check extension of the growth if an undiscovered extrinsic focus is present or cancer cells have become implanted. In extrinsic cancer of the larynx the lesion extends rapidly because of the abundance of lymphatic connections around it and the only

hope lies in local removal of the growth and block dissection of the gland bearing area. In operable cases in which only tracheotomy can be attempted radium irradiation is of value as a palliative measure

*Thyroid* In about 90 per cent of the cases of carcinoma of the thyroid gland which have been treated at the Cleveland Clinic the carcinoma was due to the degeneration of an adenoma. Therefore Crile believes that all adenomata should be removed. The treatment of carcinoma of the thyroid gland like that of goiter is mainly a problem of prevention. If the case is operable there is no question as to the procedure indicated. The only difficulties are presented by the inoperable cases with obstruction and partial asphyxiation. In such cases radium should be implanted and if the respiratory difficulty demands immediate relief the preglanular muscles should be divided to relieve the pressure of the gland on the trachea. In some cases irradiation is followed by disappearance of the carcinoma in others it seems to be of no avail. Irradiation may produce myxedema but this is readily overcome by the administration of thyroid extract. The end result of decompression and irradiation in a given case cannot be foretold but this treatment is always followed by a period of relief. It must be borne in mind that involvement of the neighboring tissues is almost sure to be present and that if the cancer involves the trachea there is practically no hope of cure

*Esophagus* Cancer of the esophagus is one of the most hopeless of malignant conditions for when the patient presents himself it is usually too late for surgical treatment. The emaciation and weakness due to the dysphagia which is the prominent symptom in themselves increase the surgical risk. In none of the cases reviewed did the patient survive for more than thirty four months

*Breast* Of the 1350 cases of cancer of the breast treated in the Cleveland Clinic only 14 were those of males. In 789 cases the condition was treated by surgery alone and in 398 by surgery and irradiation. Of the patients who have been traced 25.70 per cent have survived for five years or more

In cases in which the clinical symptoms and the frozen section do not give absolute proof of the character of the tumor complete excision of the breast and of the regional lymphatics should be done as the abundant lymphatic channels from the breast may readily produce thoracic and abdominal metastases

The so called benign breast lesions which are possibly pre cancerous include diffuse hypertrophy, traumatic lesions, chronic mastitis, cysts and the so called benign tumors

The author emphasizes the importance of frequent examination of the breast after the local excision of what appears to be a benign tumor in order that a radical operation may be performed immediately if the lesion shows any signs of malignancy. Biopsy is contra indicated on account of the danger of disseminating the tumor if it is malignant. Whatever the character of the growth it should be removed entirely and then sectioned



From the end results of irradiation in cancer of the breast at the Cleveland Clinic Portmann concluded that intensive X ray therapy especially by the cross fire method is not the preferred procedure for the postoperative treatment of carcinoma of the breast and that postoperative X ray therapy with moderate repeated dosage decreases the incidence of recurrence and metastasis and often prolongs life. Therefore irradiation therapy is given as soon as possible after the operation without waiting until the wound is healed. Irradiation is employed instead of surgery only in cases which are entirely inoperable.

*Stomach.* A study of the records of 648 cases of cancer of the stomach shows that there is usually a history of indigestion or ulcer that ulcer of the stomach has a distinct potentiality as a precancerous condition that the history and the X ray findings are the most valuable means of diagnosis that a differential diagnosis between an old ulcer and an early cancer cannot be made with certainty and that when cancer is suspected exploration should be done at once. In late cases there is great danger of metastasis especially to the liver or retroperitoneal glands after surgical removal of the lesion.

Cancer of the stomach is characterized by such rapidity of growth and such extensive lymphatic involvement that it reaches an inoperable stage very early in its progress. Since the earliest stages are practically symptomless and the earliest symptoms are those of more or less mild indigestion the majority of cases come for treatment too late for cure.

The operation indicated is the widest possible excision of the growth. In cases in which the prognosis appears to be hopeless the use of blood transfusion, injections of saline solution, diathermy during and after the operation, the application of hot packs and operation performed in stages may sometimes effect a cure or result in a comfortable prolongation of life. In some cases disappearance of the supposedly cancerous mass after the first stage of a two stage operation has rendered the second stage unnecessary.

Of 95 cases treated by resection five year survival resulted in 69 per cent and of 68 treated by gastroenterotomy five year survival resulted in 52 per cent. In 2 cases treated by irradiation alone there were no five year survivors.

*Gall bladder.* When a patient presents symptoms referable to the gall bladder which have been present for more than a year the possibility of malignancy of the gall bladder should be considered. As cancer of the gall bladder is usually associated with cholecystitis treatment for the latter condition is often given until the disease has extended into the liver and deep structures and it is too late for operation to be of avail. If the presence of the malignant condition is recognized before extension to the liver has occurred immediate cholecystectomy is indicated.

*Liver.* Cancer of the liver is rarely primary and is always incurable.

*Intestines and rectum.* Six hundred and eighty five cases of carcinoma of the large intestine and rectum have been treated at the Cleveland Clinic. Of the patients who can be traced 84.5 per cent have survived for five years or more.

The diagnosis of carcinoma of the small intestine is made from the history and clinical signs and the X ray picture. When such a carcinoma is found an exploratory operation should be performed to determine its operability and it should be removed immediately if possible.

In cases of carcinoma of the large intestine and rectum a colostomy should usually be done and followed by radical operation with postoperative roentgen irradiation. In cases in which the growth is so low in the rectum that it is readily accessible the implantation of radium needles and the application of radium packs may be sufficient. In inoperable cases a colostomy should be done and followed by irradiation. There should be a period of about ten days between the colostomy and the decision as to the method of treatment since that length of time is necessary to allow the inflammatory reactions of the disease to subside sufficiently. The decision as to the type of operation to be performed depends of course upon the findings of an exploratory operation. After the colostomy the entire picture may change.

While deep roentgen irradiation is beneficial after operation or radium treatment it is of little if any value in the treatment of recurrences.

*Genito-urinary organs.* Of the patients treated for malignant disease of the genito-urinary organs at the Cleveland Clinic who can be traced 98.4 per cent of those treated for malignancy of the bladder, 87.4 per cent of those treated for malignancy of the kidneys and 37.5 per cent of those treated for malignancy of the prostate have survived five years or longer.

In general malignant tumors of the genito-urinary organs are best treated by surgery with in certain cases the addition of irradiation. In inoperable cases irradiation may be the only possible treatment.

Tumors of the kidney in children may sometimes be reduced by deep roentgen therapy but the irradiation must be followed later by surgery.

For malignant tumors of the kidney in adults the indicated treatment is surgery with irradiation before and after operation. Irradiation will often so reduce the size of the tumor that an inoperable case becomes operable. Tumors of the kidney should be irradiated however hopeless the outlook. In some cases of deep bladder tumors radium has seemed of value but the results are too uncertain for its routine use. Postoperative irradiation is employed in many cases but principally because of the hope that it may be of avail rather than because of any definite results that have been obtained up to the present time.

Malignant tumors of the testes are treated by surgery with irradiation both before and after operation.

In carcinoma of the prostate it remains to be decided whether prostatectomy or irradiation is the treatment of choice. The author believes that prostatectomy is to be preferred in uncomplicated cases but in cases in which a high blood urea cannot be reduced irradiation may be the only possible treatment or may be indicated to tide the patient over until prostatectomy can be performed.

*Uterus* Seven hundred and eighty three cases of carcinoma of the uterus have been treated at the Cleveland Clinic. Two hundred and eleven were cases of carcinoma of the fundus and 572 were cases of carcinoma of the cervix. Of the patients treated for carcinoma of the fundus who can be traced 14.84 per cent have survived for five years or longer. It is still unknown whether surgery or irradiation is the treatment of choice for carcinoma of the fundus but in carcinoma of the cervix the pre eminent value of irradiation appears to be established.

In the cases of women past middle age who have an intermittent or continuous uterine discharge an immediate complete hysterectomy should be performed even if the character of the discharge does not appear to indicate the presence of a malignant

condition. Curettage is contra indicated in such cases for if cancer is present this procedure will disseminate the cancer cells.

In inoperable cases of carcinoma of the fundus deep roentgen therapy is of value for palliation and the prolongation of life.

In the irradiation of carcinoma of the cervix both radium and deep roentgen therapy are used. Radium is applied in needles and by packs.

*Ovary* When carcinoma of the ovary is primary which is rare the removal of both ovaries is indicated. If the peritoneum is extensively involved deep roentgen therapy may retard the disease.

*Bone* It is still uncertain whether a primary malignancy of bone should be treated by roentgen irradiation or by surgery but it has been definitely established that if operation is performed it should be preceded and followed by roentgen irradiation and if the condition is in a limb amputation should immediately follow irradiation provided the condition is operable. The only treatment for metastatic tumors is palliative roentgen irradiation. Radium is contra indicated as it will destroy the periosteum and cause necrosis.

JOSEPH K. NARAT, M.D.

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NOTE.—THE BOOK PAGE FIGURE IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

## SURGERY OF THE HEAD AND NECK

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Q u a l i t a t e a n d q u a n t i t a t e s t u d i e s o f t h e  
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l m B Z o d e k Z e t r a l l b f G y n k 93 p 36  
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## GENITO-URINARY SURGERY

### Adrenal Kidney and Uret r

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93 c 3  
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I t r a o u p y l o g r a p h y W W G a l b r a t t i s G l a s g w  
M J 93  
E c t n r o g r a p h y a n x p e r i m t l e s t t n f  
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M i l e d g r o e t g l g a l p y l o g r a p h c a l s t u d e s  
r o l y f B M i n g h a m Z i s c h f r o l C h 1930  
x x x 264  
A n m a l e s f t h k d n e y a n d r e t E C h r i s t i a n a n d  
P o p e s c u B u z e r R d h i B u c h a r e s t 93 x x 343  
A n a l d p l c a s i f t h r e n l p e l I f C  
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B i l a t r a l d f m u t v f t h k d n y s J L M o n s e r r a t  
R d e s p a l d a d A s o c m e d r g t 930 367  
A n m a l u l r o t a n a d a s s o c i a t e d n o m a l e s  
W F B r a a s c h J U l 93 t x x 9 [451]  
N p h p t P G S m i t h G F M c K i n a n d T W  
R u s h O h i S t a t e M J 93 x x 7  
R l p i a d p p n d i t u M o z A b u d d  
L R R m e d d C h i 1930 l 84 [452]  
P l k i d n y f t h r o a l H L a f f i t t e n d P  
S m i t h J d l m e d e t h 93 x x x 448  
T h p y l o 8 V L o z z i d A V i r l e  
P l l n R m 930 x x x i s e z c h r 588 [452]  
T h k i d l d t h p h l s u l p h o p h t l e t e s t  
H B l a n c J d u l m e d t c h 93 x x x 46  
F u n t o n a l t u d e s f t h k d e y b y t h e p o c e d e f  
V l h a r d H C h l b n i e r a n d C L O z e l R m e d  
L a t A m 93 x v 3  
T h l f n a l f n e t t t i n g r y D M e z o z  
R e m e d d C h i 93 l 89  
F c t r s w h c h d e t r m a l w g h t A I R a l  
f n t E M M c k s d B O R a u l s t o J E x p e  
M 93 l i 99  
T h p a t h o l o g y n d t e a t m e t f r a l i n s f l u c i y F  
N e c k e r Z i s c h f U l S n d e b d 93 p 75  
T h f u c t f t h k i d y n a o f a e p t p e d o  
p h p h a t n R S e a e t z s f r o l C h  
93 x x x 39

R e n a l f n e t d s r e c a l i t e r v e n t s A V L e r i o  
F o l h m e d 93 4  
T h e m r p h o l y t h r e s h o e k d n e y A R u n s c h e n  
Z i s c h f U l C h 930 x x x 246  
A n e x p e r i m t i t d y o f h y d r o n e p h r o s i s P P i r  
A c c i t d C L o c R e l l i a A r c h t a l d u r o l 93 v u  
35 [42]  
P i f l i g h t h y d r o e p h r o s i s I t t r e a t m n b y e n r a  
t n o f t h r e p e d c a d p r o p e r y J S a l l e a s  
R e v d e s p e c i l d e s A s o c m e d a r g e n t 93 113  
[453]  
T h e s t a t s f c u t e p y l u s c h i l d r e n C H i n a  
I n t m a t J M e d & S r g 93 x l 26  
P y l e p h r i t d r i n g t h e c o r e f d i t t f u r e t r a l  
o n s t C G K L e s c o J d u r o l m e d e t c h r  
93 x x x 470  
E c h n o c o c c u s f a c r o s s e d d y s t p l a l t h e k d e v s V  
P l u v e r i c L e w j e s t i n k Z a g r e b 93 l u 90  
S y n p h o f t h e k i d n e y s W S i e b e c 930 B e l n  
S p i z e  
T h e p r e s e n t t t f t h e t u d y f u r o g e n i t a l t u b e r c u l o s i s  
L F R o n c e z M o l i n a d J H e r ( d e z I n c e z  
A n d e r u g 930 399 [453]  
T b e r c u l u s p e l u r e t n t o f t h n h t k d n y M  
G S t u r t o M e d J A s t r a l i 93  
T b e r c u l u s s o c i e t w i t h r e a l s t n e M S e r m e t  
J d u r o l m e d e t c h r 93 x x x 44  
S t a p h y l o c o c c u s n t h e r n e a d r e n l t o e s J  
H e l l s t r o n Z i s c h f U r o l C h 93 x x x 173  
O b s e r v a t i o n o n t h d i a g o s t i c t r e a t m t o f r e n a l  
c a l c u l i G S F o r t i n s C a d i a n M A s J 193 x x i 79  
C a l c u l n e c t p e k i d y F P T w i t e m A m J S r g  
93 06  
R e u e t r a l c a l c u l a s s o c i a t e d w i t h m a l f o r m a t i f  
t h u p p e u r n a l p a s s a g e s G S c o l l o P l c h n R m  
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u e t C P M i n e S u r g G y n a e & O b s t 93 l u 79  
T h s u r g i c a l t r e a t m t o f n e p h r o l i t i s i s f S t r o n s  
Z i s c h f U r o l C h 930 x x x 80  
M e d e m r s f t h k i d e y u n f a c y n d c h i l d h o o d  
t d y f e t n c a s e s H L K r e s s e i m e a d W G  
H i n S u r g G y n a e & O b t 93 l i 1  
E p t h e r a l m r s o f t h k i d n y t h a d u l t A n t m u c a l  
t d y F B e s s e r A r c h d m l d r e i n s e t d o r g a n e s  
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P y l l a r y e p t h l o m a f t h r e n l p e l i W P R i n d  
C l i f t o n M e d B l l C l i f t S p r i n g N w J 93 t x x  
7  
C a l c u l p y t h r o s i s n a c a r c n m a t u s h r e s h o e  
k i d e y D R M e l l e a n d I G a s p a r J U r o l 1931 x x v  
43  
A n o m l e s f t h t r u t e n c m u s c l M F B e r n a s  
c o r a c h d m a l d e n t d r g e s g e n i t a r i a u r e s  
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## Miscellaneous

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 um y o gn COURTS R v méd d Chl 930 l 87  
 Occult spn b f d s co d ry urn y d turb es  
 J GRIMBERG Rev d esp c l d d Assoc méd arge t  
 1930 v 130  
 The sgn f nce of hæmatu B S ABESHOULSC Wet  
 V r n a M J 1931 xx 9  
 St es of cl n cal symptom r ferabl t th r ht pper  
 bdomen a d th r l ton to urin ry s dromes W  
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 Chl 1930 l 9  
 Some sp n c with re rr nt d tal infect n d  
 ther s fl n c p n infect n of th uogen tal tract  
 A L CLARA M d Cl N rth Am 93 x 917  
 Clin calc nt h t no d as f th n ryp swag  
 I Strati f th med cal tm t f cute cystopy l t  
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 Am J Surg 1931 xi 83  
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 Mech cal d n n r g cl urol gy G W F SW  
 Am J Surg 93 x 58  
 Th use f sp n l a rsth n u lgy A L CH TE  
 J Am M l 93 c 88  
 Intradu lc d l n rsth n u lgy G H TWELL  
 J Am M Ass 1931 x 9  
 H tory f o l ane thea n urol gy H C  
 BUMPUS Jr J Am M Ass 931 x 83  
 Prolan stud n y u g mal tat H R TE s  
 D t hem d W hnschr 93 x 382

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS

Conditions of the Bones Joints Muscles  
Tendons Etc

H t t p bon format n WURM Z nt l b f Path  
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 I t pl ng ntal x ts D STAFFIERI nd J D  
 l off R méd d k no 930 xx 53  
 Multi pl seo d f cts H AERY l c Roy S c  
 M d Lo d 93 x 8  
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# International Abstract of Surgery

*Supplementary to*  
**Surgery, Gynecology and Obstetrics**

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# INTERNATIONAL ABSTRACT OF SURGERY

JUNE 1931

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Kegel R F C Central Tumors of the Lower Jaw  
*Radiology* 1931 xvi 2r6

Central bone destructive tumors of the jaw include (1) the root or alveolar abscess (2) its derivatives the granuloma and root cyst (3) the dentigerous cyst (4) the adamantine epithelioma (5) the giant cell tumor (6) the fibroma and fibrosarcoma and (7) rarer lesions such as carcinoma arising from the gums and myxoma. With the X ray the central bone expanding tumors of the lower jaw can be differentiated from periosteal lesions and osteomyelitis.

The most frequent finding in a routine X ray examination of the teeth is the presence of periapical areas of bone absorption about non vital teeth whose apices may be more or less eroded. This characteristic lesion is usually called a root or alveolar abscess but if the tooth is extracted a granuloma or sometimes a root cyst will be found. These lesions can be identified with certainty.

The dental root cyst is the most frequent lesion next to the granuloma. It arises from a granuloma in which epithelial strands have undergone cystic degeneration. It slowly increases in size by desquamation of the stratified squamous epithelium lining the cyst wall. When the roentgenogram shows a central bone destructive lesion 3 cm or more in diameter which involves neighboring tooth roots the diagnosis becomes difficult as such a lesion may be a growing dental root cyst a dentigerous cyst a central fibroma or sarcoma a giant cell tumor or even a squamous cell carcinoma originating from the mucous membrane. Atypical lesions should be studied microscopically to exclude early malignancy.

The next most frequent lesion the adamantine epithelioma is a true neoplasm arising from the enamel organ. Its most common site is in the neighborhood of the molars an area which is a frequent site also of dentigerous cysts and giant cell tumors. The dentigerous cyst a cystic degeneration of the enamel organ occurs much less frequently than the root

cyst. The dental root cyst and the dentigerous cyst are treated by excision with stripping of the epithelial lining from the cyst wall.

Next in frequency is the giant cell tumor. This lesion and the monocystic adamantinoma are attacked with the chemical cautery. Polycystic adamantinomatata should be resected. Central fibromata are comparatively rare lesions. The bone cavity left by a central fibroma must be treated with the chemical and thermal cautery. SAMUEL KAHN M D

### EYE

Thomas J W T Successful Grafting of the Cornea in Rabbits *La cel* 1931 cccv 335

The author divides the experiments reported in this article into six groups according to the type of operation performed.

Type 1 Seven rabbits were used. In the case of one animal the graft consisted of a horizontal strip of cornea with a conjunctival flap at each end. In the cases of six animals the cornea was transplanted with a certain amount of conjunctiva. In four animals the graft united and healed but first cloudiness and then ulceration finally developed and there was no useful vision.

Type 2 In seventeen experiments a central or paracentral graft was held in place by stitches passed through the margin of the graft and the margin of the adjacent cornea. Of sixteen grafts nine united seven failed to unite two became nebulous and seven were opaque. There was a definite tendency toward anterior synechia and stitches always damaged the graft especially if they produced tension across it.

Type 3 Seven rabbits were used. The grafts were cut in a shelving manner and all were autoplasmic. Four became united. One of the four became opaque and developed synechia and one became nebulous. In all there was a tendency toward slight bulging due to intra ocular tension. In one operation a minute pedicle of corneal tissue was

retained to see if the graft could not be kept transparent. It was found that even a small pedicle of corneal tissue aided in revitalizing the graft.

**Type 4.** Eighteen rabbits were used. A triangular or quadrilateral graft taken from the margin of the cornea was united to the cornea by stitches and a wide iridectomy was performed to prevent anterior synechia. Thirteen of the grafts became united. They showed a clear area for about two-thirds of the graft and nine were opaque. The use of olive oil did not increase the risk of failure. Of the nine grafts in which five or fewer stitches were used four failed to unite, whereas of the others in which six or more stitches were used only one failed to unite. Stitches are able to produce a line of tension along the graft which is very undesirable.

**Type 5.** Sixteen experiments were done. The grafts were fixed by cross stitching that is the sutures were inserted in the substance of the adjoining cornea, passed over the graft on its anterior surface and inserted in the cornea on the opposite side, the ends being then tied together. One such stitch was used in three cases. In two of these the graft became displaced about the fifth day, and in one case its margin failed to unite and it became opaque with synechia. In thirteen cases two stitches were passed at right angles to each other across the graft. In six of these the graft became united. The grafts were homoplastic. Olive oil was used in every case. Of the six grafts which united one had a clear central area after three months but five became opaque.

**Type 6.** All grafts were secured by cross stitching with two sutures. In a group of ten rabbits the graft was either equal to or slightly larger than the gap. In the cases of two of these ten rabbits it was cut in a shelving manner. In five of the remaining eight it united and in three it became partly attached. Of the five grafts which united one was opaque, one had a small central area that was practically clear, one had a central clear area, and the two others were clear. This group shows that cross stitching is the best method of securing the graft. In another group of rabbits the two grafts were outlined with a trephine measuring nearly 5 mm and a gap in the cornea was prepared in the same way. Both were cut in a shelving manner and both united. One became opaque and the other nebulous. In a third group of experiments performed on two rabbits the grafts were removed with the trephine and scissors. The trephine was 7 mm less in diameter than that used for the outlined gap. Both grafts became united but neither was clear. In a fourth group of rabbits thirteen experiments were done. The seven grafts operated on by the best technique were all removed with scissors and smaller trephines with less difference in their diameters. Cross stitching was used and the grafts were cut in the shelving manner. All seven grafts became united. One was opaque, one showed a small central area and five were transparent. The opaque graft had anterior synechia.

LESLIE McCORMICK

## EAR

Meltzer P E Gadenigo & Syndome Anatomical Aspects *A & Otol* 3 5 1931 87

It appears that anatomically Gadenigo's syndrome can be accounted for on the basis of extension of infection through pneumatic cells or a diffuse osteitis in a diploic bone spreading to the petrous tip. Those who do not agree that suppuration is the cause in the majority of cases can accept the theory that an inflammatory edema at the tip is responsible. The outer layer of the dura is the internal periosteum of the skull. In cases in which an intense inflammatory reaction is present it is conceivable that the internal periosteum may become involved in a pneumatized tip in the same way as the external periosteum. Inflammation of the external periosteum is frequently seen in early mastoiditis without suppuration. The prompt relief of symptoms following simple mastoidectomy may be explained on the basis of good drainage of the tympanum and through its connections drainage of the apical cells.

From the relationship of the vessel and nerves Papale concluded that the infectious material produced *in situ* or coming from the suppurating peritympanic cavity often stagnates in the hypotympanic recess and may pass through the carotico-tympanic and pericarotid lymphatics into the perrhineum of the abducent nerve causing a lesion of the nerve without involvement of the cavernous sinus, the latter being protected by the resistant membrane lined by endothelium that surrounds the nerve and the carotid artery. He demonstrated this mode of transmission experimentally and confirmed the extradrainage origin of the paralysis of the sixth nerve in this syndrome.

There is no question of the extreme irritability of the trigeminal nerve as compared with other nerves. The distinction between neuralgia and neuritis is quantitative rather than qualitative. The pain is due chiefly to an inflammation or toxic involvement of nerves and ganglia. Involvement of the ganglion was definitely proved by Baldebeck. Wiener called attention to the appearance of herpes along the branches of the fifth nerve as an indication of ganglion involvement in this syndrome. Perkins assumed a ganglionic interference because fifty-five of ninety-five patients noticed pain in the distention of the fifth nerve and attributed it to the distended process going on at the tip. It is unlikely, however, that the pain in this syndrome is always due to involvement of the ganglion. As it is generally accepted that painful impulses are carried along sympathetic nerves to peripheral nerves and localized to an area not contiguous to the part affecting the pain may sometimes be explained by the sympathetic connections with the fifth nerve in this region. In other cases it may be due to increased pressure in the cells at the apex which gives rise to a pain reaction localized deep in the orbit or temporoparietal region. It is not easy for the patient to localize deep pain in this region. In still other cases

the pain may be carried to adjacent sensory ganglia and transferred from the sensory filaments of the neuron primarily involved and even to those of the secondary neuron. Under such conditions the stimulus is carried in this neuron pathway to the brain and is perceived as coming from the distribution area of the secondary neuron. This is reflex or reflected pain. When the ganglion connections with the nerves passing through the middle ear are taken into consideration it seems evident that the theory of reflected pain may sometimes explain the pain in the Gradenigo syndrome. The cause of referred pain is believed to be a lesion in the nerve trunk or in one of its branches. It must be borne in mind that the dura is supplied by branches from each division of the fifth nerve and that pain referred along these nerves may be of toxic origin or caused by other impulses arising in the middle ear.

On the basis of recent pathologic anatomical contributions it appears reasonable to assume that the Gradenigo syndrome may be due to (1) cells extending to the apex (paralabyrinthine subarcuate paratubal) (2) the carotid canal (carotico-tympanic canaliculus tympanici) as the result of erosion of the bone wall of the eustachian tube (3) the perineural and perivascular lymphatics of Papale (4) erosion of the tegmen tympani with extension forward and (5) the inferior and superior petrosal sinuses. JAMES C. BRASWELL, M.D.

### NOSE AND SINUSES

Goldsmith P. G. The Treatment of Paranasal Suppuration Persisting After Operation. *Canadian Medical Association Journal* 1931 xiv 7

Sinus operations have so often been followed by failure that there is considerable scepticism regarding the benefit to be derived from the surgical treatment of sinus disease. Persistence of the discharge after operation is not in itself an indication for more surgery. Regulation of the patient's manner of living, a change in climatic conditions and local treatment may allay the secretion in time.

As a rule acute frontal sinus inflammation subsides spontaneously, but removal of the anterior end of the middle turbinate may be necessary to facilitate drainage. If an external operation is indicated, very thorough ethmoidal removal should be done first.

A persistent discharge from the sphenoidal sinus is due ordinarily to deficient drainage and aceration. The author does not consider it safe to remove the sinus lining by instrumental means.

A common cause of persistent postoperative antral discharge is the presence of unrecognized disease of the frontal and ethmoidal sinuses. Another cause is fibrous blocking of the operative wound.

In persistent ethmoidal discharge operation by the external route may be necessary to remove all of the cells.

In conclusion the author says that care must be taken to avoid making the patient a nasal neurasthenic. GEORGE R. McAULIFF, M.D.

Hastings H. Osteomyelitis Associated with Frontal Sinusitis. The Value of Preserving the Anterior Wall with the Attached Periosteum. A Report of Cases. *Arch Otolaryngol* 1931 xiii 181

The author reports two cases of osteomyelitis associated with frontal sinusitis in which the inflamed bone became healed without being treated. He believes that in such cases there is a tendency to do too much surgery, the result being a fulminating infection which often ends fatally. If operation is necessary, the acutely inflamed periosteum and bony wall should be left alone. In the first case reported a conservative operation was done. In the second the osteomyelitis subsided spontaneously.

GEORGE R. McAULIFF, M.D.

### MOUTH

Santoro A. Radium Therapy in Cancer of the Mouth. (*La radioterapia del cancro della bocca*) *Radiol med* 1931 viii 215

The author reports seventeen cases of buccal cancer and one case of buccal leukoplakia which have been treated at the Institute of Medical Radiology of the University of Rome since June 1929. In two of the cases of cancer the lesion involved the upper lip in four, the lower lip in five, the cheek in four, the tongue and in two the floor of the mouth. In the case of leukoplakia the tongue was involved. A cure was obtained in ten cases of cancer and in the case of leukoplakia the incidence of cure being therefore 61 per cent.

The different parts of the buccal cavity are so closely united by continuity and lymphatic circulation that the author constantly bears in mind their reciprocal relations in discussing the lesions of each part separately. Separate consideration of the lesions is necessitated by the difference in the technique of irradiation of lesions occurring in different sites.

1. Cancer of the lip. Epithelioma of the upper lip is somewhat less frequent than epithelioma of the lower lip. If operation is done in time, the prognosis is in the main favorable and glandular metastases are infrequent. One of the two cases reviewed by the author was cured. In the four cases of cancer of the lower lip all of which were cured, the treatment was limited to the surface. The lymphatics were not irradiated as they did not appear to be infiltrated.

2. Cancer of the cheek. The five cases in this group included four epitheliomata and one sarcoma. A cure was obtained in one. The author is convinced that in epithelioma of the cheek, whatever the status of the case, superficial irradiation is entirely useless, although occasionally it is followed by temporary improvement. Only the implantation of radium around the tumor offers a hope of cure.

3. Cancer of the tongue. This condition is one of the most serious malignant lesions of the mouth as it rapidly involves the entire tongue and is soon



disminated in the gland. Accordingly the lymphatics must be treated even when they are not visibly enlarged. The author uses the technique of de Nab as irradiating the glandular regions and the lingual lesion without operative intervention. Flat innum needles with wall 0.5 mm. thick and containing 1 g from 1.33 to 2 mgm. of radium are inserted into the normal tissue around the tumor 1.5 cm. apart and at least 1/4 cm. beneath the surface. They are left in place for from ten to eleven days. The implantation is limited to the back and borders of the tongue. The lower parts of the organ and the mandible are treated by external irradiation. Of the four cases which are reviewed by the author three were cured.

4. Cancer of the floor of the mouth. This lesion is frequent and may be treated successfully with either radium or the roentgen rays. Of the two cases reported one was cured. The author implants tubes containing 2 mgm. of radium around the lesion and irradiates the lymphatic regions either directly or by external irradiation of the buccal focus.

WILLIAM W. WATKINS, PH.D.

Quick D, Nelson P, A. Haagenensen G, D. Duffy J, J. and Others. Special Clinic on Epithelioma of the Lip. *Am J C*, 1931, 19, 9.

The authors state that biopsy and a Wassermann test of the blood are indicated in every case of persistent ulcerating lesion of the lower lip. In discussing the differential diagnosis of the more pronounced lip lesions they call attention especially to the chronic inflammatory lesions many of which are precancerous.

In cancer of the lip the histological structure of the lesion does not aid in the selection of the method of treatment to the same extent as in cancer of the oral cavity proper. The extensive bulky papillary growth which may involve the entire surface of the lower lip but shows only slight infiltration is a much less serious lesion than the small deeply infiltrating insignificant looking growth.

Epithelioma the most common malignant lesion of the lip is treated most satisfactorily by the surface application of heavily filtered radium on three sides of the growth. While palpable metastatic involvement of the glands of the neck is found only exceptionally roentgen irradiation through both sides of the neck is advisable as a precautionary measure.

In cases showing metastatic involvement of the cervical nodes dissection is indicated. The apparently uninvolved side should be treated by heavy external irradiation and kept under observation. The metastatic node with its capsule invaded by tumor tissue which is regarded as inoperable should be treated by the implantation of filtered radium. Bilateral submaxillary involvement is a difficult problem from upper and lower deep cervical involvement. When dissection is undertaken in these cases it should be complete.

HOWARD A. MCKNIGHT, M.D.

## PHARYNX

Leshin N and Pearlman S. J. Are Tonsillar Recurrences Entirely Due to Faulty Operative Technique? *Arch Otol Rhinol Laryngol*, 1931, 11, 37.

The authors call attention to extratonsillar tissues which often contain lymphoid tissue embedded in their layers and are frequently neglected in routine tonsillectomy. In 50 per cent of cases in which the pharynx are well developed sites for possible future lymphoid hypertrophy are left even when the main tonsil mass is apparently removed completely. Whenever the pharynx are well developed they should be removed separately. There is no method of tonsillectomy that insures positively against the recurrence of lymphoid tissue at the site of operation as the raw operative area is epithelialized by the surrounding mucosa which with its tunica propria grows down into it and in its new site retains the ability to form lymphoid structures. The occurrence of hypertrophy in some instances and its non-occurrence in others is explained by constitutional and individual factors as yet not known.

JAMES C. B. ASWELL, M.D.

## NECK

Lewis W. Hypothyroidism and Associated Pathology. *Am J Med Sci*, 1931, 121, 65.

Lewis described the autopsy findings in a series of twelve fatal cases of hypothyroidism treated during the period from 1923 to 1930 which he characterizes as the modern era of thyroid disease. Three of the patients died without operation. Of the nine who died after operation five showed evidence of postoperative crises. Only one of the patients was under forty years of age. The majority were between fifty and sixty years old. In most of the cases the goiter and hyperthyroidism were of long standing and in all there were evidences of thyroid overactivity. The highest basal metabolic rate was 100+. All of the patients had tachycardia, seven had auricular fibrillation, two had marked cardiac irregularity and decompensation and four had hypertension.

Seven of the thyroid glands showed primary hyperplasia with solution of varying degree. The remaining five were characterized by irregular foci of hyperplasia and degenerative or involutional changes and were regarded as showing endemic goiter. One of them presented multiple adenomatous foci which were encapsulated and undergoing secondary hyperplasia.

The changes in the heart were essentially those of coincidental cardiovascular disease and were compatible with the ages of the patients. No direct deleterious effects of the hyperthyroidism upon the heart were noted but it was believed that the development and progress of pathological lesions from other sources were accelerated by the increased work, tachycardia and fibrillation. Thymic colym

phatic hyperplasia was found in two cases in which death occurred from postoperative crisis

No significant anatomical changes were found in the spleen liver kidneys pancreas adrenals or ovaries

LEO M. ZIMMERMAN M.D.

Mora J. M. and Greene E. I. Thyroidectomy for Thyrotoxicosis in Older People. Report of 200 Cases After the Fiftieth Year. *Am. J. M. Sc.* 1931 cxvii 74

Of 1060 patients operated upon for toxic goiter 200 (18.8 per cent) were fifty years of age and older. The oldest patient was seventy six years of age. The average age was fifty six and six tenths years. One hundred and forty five of the patients were females. Primary hyperthyroidism was present in 133 (66.5 per cent) and secondary hyperthyroidism (toxic adenoma) in 67 (33.5 per cent). The duration of the goiter varied from one month to fifty years. The average duration was eleven and sixty eight hundredths years. Symptoms of hyperthyroidism were present for from two weeks to thirty two years. The average duration of the symptoms of hyperthyroidism was twenty three and two tenths months. The average interval between the appearance of the goiter and the onset of symptoms was fourteen and five tenths years.

The outstanding symptoms were weight loss tachycardia nervousness tremor weakness palpitation and exophthalmos. The following cardiac manifestations were observed: tachycardia in 73 per cent of the cases, left heart enlargement in 42.5 per cent, palpitation in 41.5 per cent, dyspnea in 22 per cent, a systolic blow at the apex in 17.5 per cent, auricular fibrillation in 15 per cent and cardiac decompensation in 12 per cent. Of the 85 cases with left heart enlargement the enlargement persisted after operation in 5 in all of which the heart had been damaged. Of the 30 cases with auricular fibrillation the rhythm became normal after the operation in 27.

The average blood pressure readings were systolic 160 diastolic 80 and pulse pressure 80. Exophthalmos was present in 61 cases but disappeared in all but 5 after the thyroidectomy. The average preoperative basal metabolic rate was +41.6 and the average rate after operation -1.1 per cent. Only 4 patients were found to have metabolic rates above +15 per cent after operation and of these only 1 showed definite clinical evidences of hyperthyroidism.

Of the 7 deaths in the 1060 cases 6 were those of patients fifty years of age or older.

LEO M. ZIMMERMAN M.D.

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Delageniere Y The Futility and Dangers of Lumbar Puncture in Cranial Fractures and in the Surgical Treatment of Cerebral Hemorrhages (D l t l t e t e s d g e r s d e l p n t l o m b a e d a s l f a c t s d u c r a e e t d t t m e n t c h r u g a l d e h e m r a g e s e t b l e s) 1 h f r n b l g d c h 1929 30 49

The first case reported was that of a man forty six years of age who had been knocked down by an automobile about three hours before he entered the hospital. Lumbar puncture done soon after the accident withdrew clear fluid. After the lumbar puncture the pulse became more rapid and the patient was brought to Delageniere. On the way he began to have trouble with his speech and gradually lost consciousness. When he was first seen by Delageniere he was in complete coma. The diagnosis was cerebral compression probably due to a hematoma of the middle meninges. There was an almost horizontal fracture of the lower temporal portion. Trephination revealed a mass of clots between the skull and the dura mater. The hemorrhage of the meninges was completely stopped by tamponing. The patient did not regain consciousness.

Delageniere is of the opinion that lumbar puncture which is the classical procedure in cases of cranial injury should not be done. It is based on the supposition that the finding of blood in the cerebrospinal fluid confirms the presence of a cranial fracture. However cerebral contusion with out fracture may give rise to an effusion of blood and cranial fractures are associated with hemorrhage only if the dura mater is injured.

The author has never done lumbar puncture routinely. In the cases of patients with coma pupillary signs a positive Babinski and Ortnersign or a very slow or fast pulse after an injury the head should be shaved. In nearly every instance this simple maneuver will reveal a contused zone a very small wound or simple erosion of the scalp. This region should be palpated. If a fracture is present and the patient is conscious severe pain will be experienced at a definite point. If the patient is in coma a zone of cerebral contusion will be found at this point.

Lumbar puncture is absolutely useless in determining the indications for operation and may be extremely dangerous. In cases of cerebral contusion or cranial fracture treated by a single lumbar puncture the mortality ranges from 41 to 70 per cent whereas in the cases treated by the author it was only 16 per cent although the injuries were very severe. The results of treatment by a series of lum

bar punctures are even poorer than those in untreated cases. The motor sensory and mental sequelae are always more serious when operation is not done. The operation should be an extensive deep local external decompression. Nonintervention is indicated only in cases of fracture limited to the base and without a lesion of the centers.

The second case reported by the author was that of a man aged fifty seven years who developed hemiplegia twenty four hours after a fall. Palpation revealed a depressible area in the right parietal region where there was an almost effaced star shaped scar. The patient claimed never to have had an accident or an operation. The diagnosis was hemiplegia from fracture of the cranium and compression of the centers. Operation disclosed an anteroposterior line of fracture 9 cm long. The bone at the edge of the fracture was very thin. Ventricular puncture revealed ventricular inundation. The fall had been caused by the hemorrhage. Hemiplegia persisted and contractures of all of the limbs developed. Three months later the condition was reported as a left hemiplegia with paraplegia of the right leg.

P. C.

Orton S T A Clinical and Pathological Study of Two Cases of Obstruction of the Aqueduct of Sylvius B l l e r e o l o g a l l t v l k 1937

The first case reported by the author was that of a short stout white girl seventeen years of age who came of a family exhibiting endocrine disorders and other anomalies of development. The patient was considered an average child until she was fourteen years old. At that time she left school because of inability to learn. For two years she gained weight rapidly but the size of her head and feet remained the same. She had an excessive appetite with a strong desire for sweets and gave a history of polyuria. She had never menstruated.

At the time she entered the hospital she had an unsteady gait with a wide foot base and prescanted definite signs of pyramidal tract involvement which were somewhat more marked on the left side than on the right. The basal metabolism was -10. The findings of the sugar tolerance tests were within normal limits. Eye examinations showed a papilloedema of 2 diopters on the right and 5 diopters on the left side. No disturbance of the pupillary reactions or visual fields could be found.

Röntgen ray examinations disclosed evidence of increased intracranial pressure. The sella showed marked distortion. The anterior clinoid processes were pressed upward the floor was depressed and the dorsum was almost destroyed. Ventriculograms showed markedly dilated lateral ventricles which

were apparently not deformed nor displaced in any localized area

Autopsy revealed a percanalicular gliosis and granular ependymitis of the aqueduct of Sylvius and fourth ventricle which had caused almost complete closure of the aqueduct and consequent extreme internal hydrocephalus with rupture and the formation of a pial cyst compression of the left ventricular wall of the vermis collapse of the roof of the fourth ventricle and secondary obstruction to the ventricular outflow which was probably almost complete

The second case was that of a bright Italian boy nine years of age who entered the hospital with a history of nocturia and enuresis for three months a rapid gain in weight for two months a decrease in vision and occasional headaches Examination of the eyes disclosed a bilateral papilloedema of 2 diopters and a striking contraction of the visual fields with a suggestion of binasal hemianopsia Roentgen ray examination showed evidence of increased intracranial pressure and a rather large sella turcica Air injected by lumbar puncture did not enter the ventricles Because of the rapidly advancing optic atrophy operation was undertaken and because of the suggestive pituitary syndrome and the X ray findings in the region of the sella a frontal approach was selected In spite of two explorations no tumor mass was discovered

Autopsy disclosed an astrocytoma fibrolare beneath the aqueduct of Sylvius which had grown into the lumen and caused an obstructive hydrocephalus

The author believes that in the clinical interpretation of cases of chronic glial overgrowths a history of mental deterioration and apathy may be of value Enlargement of the head from infancy may indicate a reduced factor of safety in ventricular drainage and may serve as a sign of importance in the differentiation of obstruction of the aqueduct due to tumors of the posterior fossa and suprasellar growths Orton believes that there may be an inherent tendency toward a heavy glial framework which may predispose to glial overgrowths

In the reported case of astrocytoma no specific morphological character was found which was not found also to some degree in the reactive gliosis The diagnosis was based as much on topographical as on morphological factors

ROBERT ZOLLINGER M D

Lindau A Sargent Sir P Collins E T Riddoch G and Others Discussion on Vascular Tumors of the Brain and Spinal Cord *Proc Roy Soc Med Lond* 1931 xiv 363

LINDAU reviews the nature of the syndrome which has been given his name He calls attention to the usual cerebellar location of the tumor its accompanying cyst its characteristic histological appearance the frequent multiplicity of lesions in the nervous system the occasionally associated hemangioblastoma of the retina (von Hippel's disease) and the occasional hereditary character of the disease He stresses the importance of Cushing

and Bailey's division of vascular tumors of the nervous system into malformations and true neoplasms

SARGENT cites personal experiences with vascular tumors in the brain and spinal cord He calls attention to the failure of treatment in cases of vascular malformations and the brilliant results obtained by surgery in cases of hemangioblastoma

COLLINS said that both vascular malformations and true neoplasms may occur also in the eye and cited cases from the literature and his own experience

LEO M DAVIDOFF M D

Meagher R and Eisenhardt L Intracranial Carcinomatous Metastases *Ann Surg* 1931 xciii 132

Meagher and Eisenhardt call attention to 57 intracranial metastatic tumors which were found in Cushing's series of 1850 verified intracranial tumors Forty four were carcinomata One fourth of these were primary in the breast The average age of the patients with intracranial metastases from the breast was fifty one years The interval between the onset of breast symptoms and brain symptoms ranged from three months to twelve years and averaged three and one half years The course after the appearance of intracranial symptoms was very rapid the average length of time before death being six months

Two cases are cited to show the difficulties which are sometimes encountered in the diagnosis One was that of a woman who entered the hospital complaining of severe headache which had begun less than two years after the removal of a breast carcinoma and who gave a history of convulsive seizures twelve years before The X ray diagnosis of meningeal tumor was confirmed at operation At autopsy no metastases to the brain were found

The second case was that of a woman with a marked family and personal history of tuberculosis who had had a cancer of the breast removed and three years later entered the hospital with cerebellar symptoms The diagnosis at operation was solitary tubercle but the histological picture was that of carcinoma

LEO M DAVIDOFF M D

Bailey P and Bucy P C The Origin and Nature of Meningeal Tumors *Am J Cancer* 1931 xv 15

The authors discuss the origin and nature of meningeal tumors with case reports and photomicrographs of nine types of such tumors

They discuss first the mesenchymal type because microscopically certain meningeal tumors bear a close resemblance to the mesenchyme which precedes the formation of the meninges The loose arrangement of the cells the delicate strands of reticulum and the practical absence of collagen and elastin are quite typical

The second tumor discussed is the neoplasm of the angioplastic type previously described by Bailey Cushing and Eisenhardt In this tumor the vascular channels are merely open spaces in the tissue Most

of them are lined by neoplastic cells. Occasionally the cells lining the vascular space are flattened to form an endothelium.

The meningeal tumor of the meningotheliomatous type reproduces so exactly the structure of the localized thickenings of the arachnoid membrane especially the so called pachymenian granulations that its origin from the arachnoid is accepted. Cushing has shown that it arises usually in localities where the arachnoid granulations are most numerous. By some it has been called a neuroepithelial tumor. By others its cells have been considered fibroblasts. The cells are similar to those lining the subarachnoid and subdural spaces which we called mesothelial cells.

The psammomatous meningeal tumors differ from the preceding type only in the tendency of the neoplastic cells to form whorls which subsequently become calcified. The neoplastic cells may form no intercellular substance over large areas yet the whorl often contains reticulin which when undergoing hyaline transformation may stain feebly as collagen or elastin.

Tumors of the osteoblastic type in which there is bone formation constitute evidence of the connective tissue nature of the cells of the arachnoid membrane. The bone in these tumors is always of the membranous type no calcification being found.

Fibroblasts are rare in the ordinary meningeal tumor. However the authors report a tumor in which the cells had predominantly the structure of fibroblasts. This tumor which grew rather rapidly was comparable in structure to fibroblastic tumors seen elsewhere in the body and seemed not to be metastatic. Roentgen irradiation transformed it into a ependymoma type of growth decreased the rate of cellular division increased the production of collagen and caused the formation of numerous giant cells.

The authors cite also a case in which the tumor was classified of the melanoblastic type. In children the most common source of such tumors is the choroid but in this case the retina was normal. The authors state that a sufficient number of cases are now on record to prove that melanoblastomata may arise primarily from the leptomeninges.

Meningeal tumors of a sarcomatous type similar in structure to those of the melanoblastic type but not pigmented occasionally occur in the leptomeninges. They sometimes arise as cuffs around the cerebral blood vessels and rarely as a large mass but as a rule are widely spread in the leptomeninges. They have been called perithelioma, sarcomatosis and diffuse endotheliomatosis of the meninges.

The authors have been able to find records of about sixty cases of intracranial lipomata. The meningeal tumor of the lipomatous type is most common on the upper surface of the corpus callosum. Of this type case cited the tumor was in the region in seventeen.

Severally cases of rather extensive gliomatous formations in the leptomeninges are mentioned. These

can be explained by supposing an invasion of the leptomeninges by neural tissue during embryonic life or by undifferentiated neoplastic tissue which afterward becomes differentiated in the abnormal situation to form heterotopic malformations. They cannot be regarded as evidence of a neuroepithelial origin of the leptomeninges.

The authors conclude from their study that whatever the origin of meningeal tumors the neoplasms are of the nature of connective tissue and are not gliomatous. ROBERT ZOLLIGER, M.D.

Elberg, C. A. The Meningeal Fibroblastoma (Duran Endothelioma Meningioma Arachnoid Fibroblastoma) The Origin Gross Structure and Blood Supply and Effects upon the Brain Principle of Technique for Their Removal. *Brill's Medical and Surgical Journal* 1935, 13.

Following a review of the various theories that have been advanced with regard to the origin of meningeal fibroblastomata the author presents a theory based on studies of meningeal tumors occurring in the spinal membranes the exact relations of which to the membranes can often be noted.

He describes the various situations in which spinal meningeal fibroblastomata unattached to nerve roots may be discovered. As some of these tumors are found outside the dura or adherent to the inner surface of the dura without any demonstrable connection with the arachnoid it is difficult to explain their origin from the arachnoid.

If due consideration is given to the difference in the relations between spinal meningeal tumors and the three membranes it is evident that the origin of the arachnoid cells from which meningeal tumors arise must be sought for at an early stage of the development before the histemic condensations of cells which are to form dura, arachnoid and pia have been concluded. It is possible that at this early stage cells which should be associated with the structures that are to form the arachnoid may lose their proper affiliation and remain associated with cells destined to develop into pia mater or dura. By this assumption Elberg explains why a tumor structure which reproduces the structure of the arachnoid may be found in situations entirely unconnected with that membrane. He reminds us that displaced cell rests are prone in adult life to multiply excessively to form tumors which reproduce the histological structure of the original tissue. This fact suggests that so called dural endotheliomata are derived from misplaced mesenchymal cell rests and may originate from any of the three membranes. Elseberg agrees with Penfield that these tumors are properly called meningeal fibroblastomata.

Elberg studied the gross structure blood supply and mechanic effects upon the brain in fifty cases of intracranial meningeal fibroblastoma. On the basis of the gross form he divides these tumors into three groups: (1) hard tumors (2) soft tumors

and (3) tumors combining features of both hard and soft tumors

The hard tumors are flat or globoid usually lobulated and surrounded by a tough capsule on the surface of which are numerous blood vessels. It is the author's impression that the parasagittal and the tentorial growths are regularly of a very firm consistency definitely fibrous and almost always surrounded by a well developed capsule.

The soft tumors are better supplied with blood vessels than the hard tumors and have a very thin limiting capsule. They are irregular. Small outgrowths from them may penetrate the fissures between the convolutions. The soft meningeal fibroblastomata are found most often at a distance from the large venous sinuses. They are usually so soft and fragile that small bits of tumor may be left at operation and become a source of recurrence.

In the tumors of the third group firm well encapsulated nodules are connected with each other by soft poorly encapsulated tumor tissue.

The blood supply of intracranial meningeal fibroblastomata is derived chiefly from vessels which enter by way of the attached part of the dura. There are relatively few vessels which extend to the growth from the pia arachnoid in the tumor bed.

By dividing the dura around the edge of its attachment to the neoplasm most of the blood supply to the growth may be shut off and removal of the tumor may be made easier.

The author advises that the blood of every patient operated upon for tumor of the brain be typed and cross checked so that if a blood transfusion becomes necessary it can be given without loss of time.

The electrosurgical apparatus is a valuable aid in the removal of these tumors. Bleeding may be controlled by the use of small bits of muscle obtained from operations in general surgery. The muscle can be preserved for several days by placing it in a sterilized box kept at a freezing temperature.

The exposure of these tumors must be liberal for complete or satisfactory enucleation. In cases of parasagittal growths in which part of the dura of the opposite side must be exposed the author removes the overlying bone with rongeur forceps. This causes less loss of blood than enlarging the opening by forming a bone flap across the midline.

The central part of these tumors should be removed first with the electric knife or loop. The shell can then be removed more easily and the bleeding better controlled. In the removal of tumors attached to the falx or superior longitudinal sinus the shell of the tumor farthest away from the midline should be removed last. Removal of these tumors may require several operations.

ROBERT ZOLLINGER M.D.

Morris L. Trigeminal Neuralgia. The Anatomy of the Hartel Technique. *La cel* 1931 cxxx

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As sensory root avulsion by operation requires a highly specialized technique the author advocates

the use of the Hartel method of injecting the region of the gasserian ganglion. He cites anatomical and experimental evidence which shows that the route taken by the needle is free from danger and the foramen ovale can be located with accuracy and safety if its relations to both the infratemporal surface of the sphenoid bone and the external pterygoid plate are known.

He believes that by a high horizontal Hartel route not the ganglion but its sensory root is reached by the alcohol. The results of the injection being thereby rendered permanent.

LEO M. DAVIDOFF M.D.

## SPINAL CORD AND ITS COVERINGS

Schroeder A. Anatomical and Clinical Study of Two Cases of Extramedullary Tumor (Construcciones anatomicas clinicas sobre algunos casos de neoplasmas e intramedulares). *An fac de med Univ de Montevideo* 1930 xv 750

The first case reported was that of a woman fifty four years of age. About two years before she was seen by the author the patient began to have pain in the hips which was worse at night than in the day time. Soon thereafter she had pain in the legs and feet and formication and loss of sensibility in the soles of the feet. Walking became impossible without the use of a cane. A physician found a fibroma impacted in the pelvis which compressed the sacral plexus rectum and sciatic nerve. After operation for the removal of this tumor the condition of the feet improved under treatment with massage and electricity and walking became easier.

When the author first saw the patient in May 1928 the movements of her legs and feet were very limited the movements of the hips limited to a less degree her muscles weak and the patellar reflexes very active. Ankle clonus and a positive Babinski reaction were present on both sides. Tactile sensation was decreased below the fourth lumbar vertebra. Sensation of position was abolished in the feet and toes. Electrical examination showed slight hyperexcitability of the nerves and muscles but no reaction of degeneration. Roentgen examination of the spinal column was negative. Intraspinal lipiodol stopped at the level of the first lumbar vertebra and its position was unchanged at the end of twenty four hours. The clinical symptoms and course suggested a benign tumor causing pressure on the cord and the lipiodol examination confirmed the diagnosis. While it seemed questionable whether operation would relieve the symptoms of compression of the cord that had persisted for four years operation was performed. It disclosed a tumor at the level of the first lumbar vertebra. The tumor was removed. It proved to be a fibro epithelioma. There was little improvement in the patient's condition.

The second case was that of a patient twenty eight years of age who showed clinical signs of tumor at the level of the sixth dorsal vertebra. Lipiodol was arrested at the level of the seventh dorsal vertebra. Operation disclosed a very unusual form of

ascu ar tumo at th s k el Removal of the neo  
plasm as not followed by any g eat change in the  
patient s condition AUDREY GOSS MOR AN MD

### PERIPHERAL NERVES

Hannal J A Regener t on of Perip ral Ne es  
An Expe rimental Study Ed b g l M J 031  
x 73

An expe rimental t dy of regeneration of peri  
pheral nerves was ca ried out by the author on  
rat bits a fe v eeks old The sciatic nerve on each  
side was ex osed in the thigh an l a small incision  
made n it in a d rection transverse to its long axis  
After this procedure the cut ends of the nerve fibers  
did not retract from each other so fa as if the whole  
nerve trunk had been se eered the limb was not  
paralyzed and the animal suffered no apparent in  
con v enience When the animal was killed one of the  
nerves was fixed and subsequently treated for silver  
impregnation while the other was used for general  
histological routine When the nerves were removed  
for my st gati n they were e t ed by fine silk thread  
to f ames made of gl ss rods and placed immediately  
in formal ammonium b omide solution By this  
method dis t on was as l e ead and better longi  
tudinal s ctions of the nerve were obtained The  
Gross Bielscho ski method of impregnation by  
silver was used as a rule For histological examina  
tion the nerve was treated in the same way but  
subsequently embedded in paraffin The findings in  
the experiment sh that when a nerve bundle is  
e eered degenerative or regressive changes occur in  
the myelin sheath and axon of the nerve fiber in both  
the central and distal stump On the other hand the  
neurolemmal cells undergo progressive changes  
and at the site of the injury both the proximal and  
the distal portions of the severed fiber show necro  
totic change due directly to the trauma Whereas  
the e es e changes extend centrally to a variable  
but short distance they occur throughout the whole  
extent of the portion peripheral to the section

The author discusses the changes in the myelin  
the cell of Schwann phagocytosis and the changes  
occurring in the distal peripheral portion of the  
axial cylinder

A few hours after incision of the nerve the myelin  
retreats from the section tube and separates first  
into large and later into minute droplets which  
eventually disappear The fragmentation of the  
myelin begins multaneously along the whole  
length of the distal portion of the severed fiber Its  
removal is completed more rapidly in the smaller  
than in the larger fibers Disintegration of the  
myelin begins before any histological changes can be  
demonstrated in the axon It seems probable that  
under normal conditions the axial cylinder has a  
trophic influence on the myelin and when the former  
is severed from its cell of origin it can no longer exert  
its influence and the myelin is broken up by a  
digestive action of enzymes derived from the cells of  
Schwann

About sixteen hours after section of the fibers the  
cells of Schwann or neurolemmal cell begin to pass  
into a vegetative phase The nuclei enlarge and  
become hyperchromatic and the perinuclear cyto  
plasm increases in amount As the myelin and ax  
cylinder disappear they are more or less replaced by  
a tube of cytoplasm in which are numerous nuclei

The protoplasm of some of these tubes show a  
longitudinal striation which is one of the factors  
giving rise to the belief that the new ax cylinders  
are differentiated from the cytoplasm of Schwann's  
cells Many of the protoplasmic tubes of the peri  
pheral stump become innervated by new ax  
cylinders while a certain number become hollow and  
are eventually bounded by the connective tissue of  
the endoneurium

A few days after section of the nerve phagocytic  
cells are present in the nerve fibers of the peripheral  
stump where they ingest particles of disintegrating  
myelin and fragments of the ax cylinder The  
author believes a few of these may be polymorphonuclear  
leucocytes but that the majority are histiocytes  
He bases this conclusion on the fact that the  
majority of the phagocytic cells observed are too  
large for polymorphonuclear leucocytes and in the  
central nervous system the chief cells concerned in  
the phagocytosis of fragments of dead tissue are de  
rived from fixed cells of the part He believes that  
in the peripheral stump of the severed nerve most of  
the phagocytic cells are derived from cells in the  
endoneurium and some of them from the cells of  
Schwann

At the site of the lesion certain of the ax cylinders  
may be intensely impregnated with silver They are  
sinuous in outline but equal in diameter and do not  
present structural alterations characteristic of de  
generation and disintegration These are known as  
preserved fibers They are ax cylinders killed  
immediately by trauma Their conservation is due  
probably to some action of the exudates especially  
the blood in the wound The less the nerve is  
traumatized when it is sectioned the fewer the  
number of preserved fibers

The structural expression of the agonal changes  
presented by the portion of the ax cylinder distal to  
its point of severance is varied In many instances  
the end toward the lesion develops an oval or  
pyriform swelling and in the case of medullated  
fibers this may contain a thick pleuro of neurofibril  
Along the course of the fiber fusiform swellings  
commonly occur About two days after section the  
neurofibrils undergo granular disintegration and the  
axial cylinder undergoes fragmentation Finally com  
plete lysis by enzymatic action results The author  
briefly discusses the function of the neurofibril He  
agrees with Schroeder that neurofibrils do not form  
the conducting element of the nervous system but  
are merely a framework for the nerve cell

The distance from the wound to which necrosis of  
the ax cylinders occurs varies with the individual  
fibers The smaller the ax cylinder the shorter the  
necrotic portion The early phases of regeneration

present a picture which differs according to the distance at which the living portion is situated from the wound. In the case of the fine fibers the living portion develops a terminal swelling and grows toward the exudate. Because of the obstacles which it encounters in its growth the fiber may break up into a number of branches each of which ends in a swelling. These new fibers are found in the exudate as early as twenty four hours after the operation.

Similarly the living portion of the large medullated fibers develops a terminal swelling. About twenty four hours after the operation this gives rise to fine branches and thereafter reverts to the normal size of the axis cylinder. The new fibers grow toward the wound at the periphery of the tube between the neurolemmal sheath and the detritus of myelin and fragments of the necrosed old axis cylinder. The new fibers branch around and between the disintegrating masses within the tube and the various other obstacles to growth which are present in the wound such as blood clot droplets of fat cells which have migrated into the exudate, displaced fat cells and muscle fibers. It has been computed that in adult animals only one of six or seven of the sprouts formed within the central portion reach the peripheral stump even under the best conditions. In young animals the number is larger. In the author's series the new fibers reached the peripheral stump in six or seven days after hemisection of the nerve trunk. The number of fibers reaching the distal portion of the severed nerve and the time at which they do so depends upon various factors. Chief among these is the distance of the ends of the severed nerve from each other and the nature and amount of the various obstructions present in the intervening space. Cajal estimated that the rate of growth along the peripheral part of the severed nerve trunk is ten times as fast as the rate of growth in the scar.

The author believes that the myelin sheath does not begin to be formed until the axis cylinder passes from the phase of growth into the phase of functional activity. New cells of Schwann and myelin sheaths occur in relation not only to the new fibers which have entered the old tube in the peripheral stump but also to those which have grown extratubally. In the process of regeneration of peripheral nerves the law of Marenesco doubtless holds. Function is a necessary condition for the trophism of the neurons and nerve paths. A cell or fiber that does not function sooner or later disappears.

ROBERT ZOLLINGER M D

#### MISCELLANEOUS

Foerster O. The Surgical Treatment of Neurogenic Contractures. *Surg Gynec & Obst* 1931  
in 360

A neurogenic contracture is one in which fixation is brought about by contraction of a muscle or a muscle group as the result of abnormal innervation. The author discusses the more common factors causing this condition.

Contractures caused by pathological irritation of peripheral motor nerve fibers are due to traumatic nerve lesions in the presence of latent tetany. Irritation of a single nerve by the traumatic process becomes effective only if there is a latent tetanic condition. Under such circumstances the excitability of the traumatized nerve as well as that of other nerves to electrical and mechanical stimuli is increased. The contracture disappears promptly when the scar tissue surrounding the nerve or the foreign body embedded in the nerve is removed.

Contractures produced by pathological irritation of afferent peripheral nerve fibers are common. They develop following the division of a cutaneous nerve and the formation of a neuroma at the central stump or when the nerve becomes embedded in scar tissue. Pain is a constant symptom. These contractures are produced in such a way that the injured nerve is relaxed and the irritation is thus reduced. The reflex origin of all such contractures can be demonstrated by injecting novocain proximal to the lesion. Permanent relief has been obtained in the majority of the cases only by avulsion of the injured nerve.

Reflex contractures due to pathological irritation of afferent nerve fibers occur also in traumatic lesions of mixed nerve trunks. The surgical procedure in these cases is either excision of the neuroma followed by suture if the nerve is divided or in less severe cases in which the motor fibers of the nerve are damaged only slightly if at all by liberation of the fascicles of the nerve trunk (endoneurial neurolysis).

Contracture following pyramidal tract lesions are reflex in nature. They are nothing but an increased muscular reflex response to stretch (stretch reflex). Because of the abnormal reflex activity of the spinal cord the limbs are often brought into abnormal positions and then fixed in these positions by the stretch reflex.

There are three ways to relieve the increased response of the muscle to stretch:

- 1 Operations on the muscles and tendons (a) complete cutting of the muscle or tendon (permissible only if the muscle is dispensable) (b) lengthening of the tendon of the spastic muscle and (c) transplantation of one point of insertion of the muscle to a point closer to the other point of insertion.

- 2 Total or subtotal deafferentation of the spastic muscle by total or subtotal resection of its motor nerve branches.

- 3 Deafferentation of the spastic muscle by resection of the posterior spinal roots.

In spastic hemiplegia the best procedure to overcome the spastic contracture of the calf muscles is lengthening of the Achilles tendon. To overcome the supination which the foot undergoes if flexed the author resects the motor branches of the posterior tibial muscle or lengthens the tendon of this muscle behind the internal malleolus. He also splits the tendon of the anterior tibial muscle into halves.



longitudinally and inserts one half into the tendon of the peroneus tertius. To prevent contracture of the flexors of the toes which occurs when the foot comes in contact with the ground, the best procedure is total subcutaneous tenotomy of the tendon of the flexors of the toes just proximal to the point where they reach the toes. To overcome spastic contracture of the quadriceps the best procedure is partial resection of the crural nerve just below the inguinal fold. Spastic contracture of the adductors of the thigh is overcome by subtotal extraperitoneal resection of the obturator nerve in the pelvis. Retraction of the hamstrings usually found in infantile hemiplegia is corrected by lengthening the tendons of these muscles.

In spastic contracture of the paralyzed upper extremity in pyramidal tract hemiplegia the results of surgical treatment are not so good as those in the leg. In the upper extremity spastic contracture of the adductors is corrected by resection of some of the motor branches of the pectoralis major and the motor nerve of the latissimus and teres major. To overcome spasticity of the internal rotators of the arm the majority of the nerves of the subscapularis are resected. For contracture of the flexors of the forearm from one third to one half of the musculospiral nerve is resected. For contracture of the pronators of the hand the motor branches of the pronator teres are resected while for contracture

of the flexors of the wrist the tendons of the flexor carpi radialis and of the flexor carpi ulnaris are cut and inserted into the tendons of the extensors of the wrist. The correction of contracture of the flexors of the fingers is a very difficult problem. The motor branches of the flexor sublimis and profundus and of the flexor pollicis longus may be partially resected. For contracture of the adductor of the thumb tenotomy of its tendon is the best procedure.

For the relief of paraplegia with generalized contracture posterior root resection is advisable. How far voluntary motility can be restored depends upon the number of innervating fibers of the corticospinal system which are preserved. Spastic paraplegia may be similarly treated.

In the treatment of congenital spastic conditions proper diagnosis and selection must be stressed. Root resection will relieve spasticity due to pyramidal tract lesions but is of no avail in that due to extrapyramidal lesions. Moreover the child must have sufficient intelligence to cooperate in a systematic regimen of exercises after operation. Patients who are subject to epileptic seizures should not be operated upon by root resection.

Torticollis is caused by a cramp of the contralateral sternocleidomastoid and the ipsilateral neck muscles. To relieve this condition the contralateral accessory and the homolateral upper four spinal roots are cut. DAVID J. LEE, ST. LOUIS, MO.

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Lee B J and Pack G T Giant Intracanalicular Myxoma of the Breast *Ann Surg* 1931 xciii 250

Giant intracanalicular myxoma of the breast the so called cystosarcoma phylloides mammae of Mueller was an uncommon tumor even a hundred years ago but is much less frequent now because the precursory fibro adenomata of the breast are recognized and removed

This article is based on 4 such tumors studied in the Breast Department of the Memorial Hospital New York during the past twelve years and ing collected from the literature

At least 25 terms have been used to designate this tumor The authors favor the term giant intracanalicular myxoma of the breast

Grossly the tumor tends to fall apart because of its enormous clefts and polypoid masses Opening of the clefts discloses communicating cysts from which tightly packed polypoid masses can be lifted out These intracystic polypoid masses have been described as papillary elephantiasis They may be cone shaped nodular or sessile Between them and the cyst wall there may be only a thin layer of straw colored fluid The capsule of the tumor may be highly vascular thin and transparent The stroma is derived from the subepithelial connective tissue and is usually myxomatous The myxomatous changes are more pronounced within the polyps than in other interstitial tissues of the tumor The tumor cells are often radially arranged around the blood vessels The firm portions of the stroma are composed of fusiform cells resembling those of sarcomatous tissue Inflammatory changes are often found in the tumors Hyalin changes occur diffusely and calcareous deposits and pigment accumulation may be discovered in the stroma of the neoplasm The ducts of the tumor are dilated and tortuous

The origin of these tumors is disputed Some believe that the neoplasms have their primary anlagen in the epithelium and others that the marked proliferation of the pericanalicular connective tissue is more important

In the 109 cases reviewed the average age of the patients was forty four and six tenths years and the average known duration of the disease six and seven tenths years Therefore the average age of onset was thirty seven and eight tenths years Three of the patients were males A history of trauma was given in thirteen cases The authors believe that the metamorphosis of fibro adenoma into cystosarcoma phylloides is stimulated most frequently by repeated births and lactations The average mother in the cases reviewed had 4 children

The 3 clinical features which distinguish the giant intracanalicular myxoma of the breast are the presence of a precursory tumor and the rapid growth and the unusual size of the myxoma In the cases reviewed only 4 of the patients stated that pain was an initial symptom The general health remains good Cachexia does not occur unless ulceration infection and hemorrhage alter the local condition

The tumor is usually bulky freely movable and encapsulated and contains regions of fluctuation and resistance There is no retraction of the nipple and no axillary lymph nodes can be palpated The weight of 19 tumors averaged 7.6 lb In the histories of 47 of the cases reviewed definite mention was made of the presence of a precursory tumor In 26 cases the rate of growth was very rapid In 38 the tumor grew slowly for a long time and then exhibited a sudden exacerbation of growth In the others growth occurred at a moderate rate or was slow

The prognosis is good Of 91 cases in which the outcome is known a recurrence developed in only 6 The tumor will recur if it is incompletely removed In all cases of cystosarcoma of considerable size it is advisable to do a complete amputation of the breast including the fascia over the pectoral muscles

ALTON OCHSNER M.D

Martindale L The Treatment of Cancer of the Breast *Lancet* 1931 ccxx 29

The author believes that the results of surgical operation in carcinoma of the breast can be improved by adequate postoperative radiotherapy She states that the operation for carcinoma of the breast has probably reached its final development whereas radiotherapy is still in its early stages

She urges early operation while the tumor is still localized to the breast with radical removal of the breast fascia pectoral muscle or muscles fat and glands X ray therapy should be begun not more than from three to seven weeks after the operation In all advanced cases three or four needles of radium should be placed along the third fourth fifth and sixth intercostal spaces to destroy malignant cells in the internal mammary group of lymph glands

For inoperable cases radium and X ray treatment are indicated The production of an early menopause by irradiation is not practiced by the author

The success of treatment depends more upon the type of the case when it is first treated and the time between the operation and radiotherapy than on the type of the growth Marked radiosensitivity is no criterion of the ultimate ease of cure

EARL O LATIMER M.D

Pf hler G E and Parry L D Roentgen Therapy  
In C rcinoma of the Breast 1 S g 193

4

This article is based on 977 cases of carcinoma of the breast which were treated in the period from 1902 to 1927. Attention is called to the fact that any statistical study of irradiation which is made today must include the results of a varying and developing technique. Moreover a direct comparison of irradiation statistics with surgical statistics is difficult because very few primary cases of carcinoma of the breast have been referred for irradiation treatment and recurrent carcinoma which was the lesion present in a large number of the cases reviewed is not included in the usual surgical statistics.

The authors have found grading of the tumors according to the degree of malignancy shown by routine microscopic sections of no aid in the determination of the prognosis.

Slightly over 1 per cent of the cases reviewed were those of males. In 76 per cent the first evidence of the condition was a lump or pain. The average duration of the symptoms before operation or irradiation was sixteen and two tenths months. Only 69 per cent of the patients received treatment within twelve months after the first evidence of the disease and only 10 per cent received it within one month.

Four hundred and nineteen of the patients were known to have a recurrence. Of these 64 per cent developed the recurrence within a year and 30 (7 per cent) developed it more than five years after operation. Following recurrence there was an average delay of six and six tenths months before irradiation was begun.

Of the entire series of 977 cases recovery for a period of three years resulted in 50 per cent and recovery for five years in 36 per cent. The authors believe that with increasing knowledge of radiotherapy much better results may be obtained. They regard postoperative irradiation as of definite value and believe that in the early cases without axillary gland involvement a five year recovery should be obtained in over 87 per cent. In operable cases with axillary gland involvement they expect five year recovery in 57 per cent. The largest group of cases in this series reviewed were those of recurrent and metastatic cancer. In these the incidence of five year recovery was 85 per cent when modern methods were used. Of the 67 cases of primary nonresectable carcinoma three year recovery was obtained in 43 per cent and five year recovery in 25 per cent. Of 39 early cases without axillary gland involvement in which operation was contra-indicated irradiation resulted in five year recovery in 85 per cent.

FRAN B BRY MD

Lin M and Field J R Metastases to the  
Skelet on Brain and Spinal Cord from Cancer  
of the Breast and the Effect of Radiotherapy  
1 S g 193 78

One hundred and sixty eight cases of carcinoma of the breast with metastases to various parts of the

body were studied from the time of the discovery of the tumor until the patient's death. Skeletal metastases proved by roentgen examination or at autopsy occurred in 81 (48 per cent) brain metastases in 15 per cent and spinal cord involvement in 8 (7 per cent). Of the 85 cases with metastases to the skeleton and central nervous system the condition was verified by histological examination in 67. In 32 a postmortem examination was made. Sixty cases were graded according to the histological evidence of malignancy into 3 groups: those of Grade 1 being the least malignant and those of Grade 3 the most malignant.

The average interval between the discovery of the tumor and the onset of skeletal metastasis was forty six and five tenths months in the cases of Grade 1, twenty nine and one tenth months in those of Grade 2 and ten months in those of Grade 3. The survival period after the discovery of the tumor was fifty and ten tenths months in the cases of Grade 1, twenty three and five tenths months in those of Grade 2 and seventeen and three tenths months in those of Grade 3. Age apparently had no effect upon the survival period. In most of the cases the condition occurred in the fifth decade of life.

The clinical evidences of skeletal metastases were pain and localized tenderness over the bone involved. Pain as the earliest symptom in 75 per cent of the cases. The interval between the onset of pain and the appearance of definite roentgen evidence of skeletal metastasis varied from a few weeks to a year.

Of the 45 cases of metastasis occurring in the preterminal stage of the disease the skeleton was the primary localization in 82 per cent. However the metastases remained limited to the skeleton in only 16 per cent. Mentioned in order of decreasing frequency of involvement the parts of the skeleton most frequently involved by metastases were the lumbosacral spine, femur, pelvis, distal spine, skull, ribs, scapula and humerus. Pathological fracture was a late manifestation and occurred in 26 per cent of the cases.

Irradiation with the X rays and radium as of value in the control of the pain. It caused a diminution and at times a temporary regression on the clinical and X ray signs of skeletal metastases. Clinical improvement began from twelve to four to forty eight hours after the first treatment and lasted for from a few weeks to three years.

Clinical signs suggesting metastases to the central nervous system occurred in 21 per cent of the 168 cases and were usually a terminal manifestation. In more than half of these cases there were associated metastases in the skull and in all of the cases of spinal cord involvement there were metastases in the corresponding vertebrae.

FRANK B BERRY MD

Seiner B F The Results of Treatment of  
Cancer of the Breast 1 S g 193 c 269

Surgeons and radiologists have come to consider cancer of the breast as one of the conditions in which

it is most difficult to determine the prognosis. After a period of from one to ten years dissemination of the original tumor along the second, third and fourth intercostal spaces near the sternum, mediastinal and pleural involvement or metastasis to the bones is often found.

Schreiner is inclined to believe that the word cure as applied to malignant disease should be replaced by the words clinically well.

Considerable confusion exists as to the interpretation of the results of treatment. For clarity therefore Schreiner divides the 480 cases he reviews into 283 cases of primary carcinoma and 197 cases of postoperative recurrent carcinoma. He then divides the cases of primary tumor into 3 groups: Group 1, those of localized cancer; Group 2, those with involvement of the skin and axillary lymphatics; and Group 3, those with widespread metastases. The cases of recurrent carcinoma he divides into 2 groups: Group 1, those of local recurrence; and Group 2, those with disseminated metastases.

Of the 83 patients treated for primary cancer 45 (54 per cent) have been clinically well for five years or longer. These include 30 (58 per cent) of the 52 with primary tumors of Group 1 who were treated by the Meyer radical operation and irradiation; 4 (21 per cent) of the 19 with primary tumors of Group 1 who were treated by irradiation alone; 10 (19 per cent) of the 53 with primary tumors of Group 2 who were treated by operation and irradiation; and 1 (1.2 per cent) of the 79 with primary tumors of Group 2 who were treated by irradiation alone. None of the patients with primary tumors in Group 3 or recurrent tumors of Groups 1 or 2 who were treated by irradiation alone has remained clinically well for five years.

Schreiner is convinced that irradiation is of distinct value to retard the growth of the cancer, relieve the pain and prolong life.

ALTON OCHSNER, M.D.

### TRACHER LUNGS AND PLEURA

Jacobaeus H. C. and Westermarck N. A. Further Study of Massive Collapse of the Lung. *Acta radiol.* 1930 XI 547.

The authors have observed collapse of the lungs in the following conditions:

1. Hemoptysis. Massive collapse of the lung occurred in four of twenty-five cases seen in the course of three years. In these four cases there were extensive hemorrhages and a short history.

2. Recurrent bronchitis. Acute collapse of the lungs occurred as an independent condition in two cases of recurrent bronchitis and resembled postoperative collapse.

3. Bronchostenosis and bronchiectasis of unknown origin. Chronic collapse occurred with only slight signs and symptoms in a case in which these conditions were found.

4. Bronchiectasis. Collapse of the lung occurred in three cases of bronchiectasis. The bronchial

dilatations became aggravated in a short time and the condition showed signs of progression. The authors attribute the changes to infection and the markedly increased negative intrapleural pressure associated with the pulmonary collapse, which in two cases reached -30 and -40 cm. of water. They noted pronounced broncho-amphoric breathing over the collapsed areas. They explain this phenomenon by assuming that certain larger bronchi were open while distal bronchial branches were to a large extent occluded by inflammatory changes. In support of this theory they cite pathologic anatomical observations and the findings of roentgenological and bronchoscopic examinations.

5. Chronic pulmonary tuberculosis without hemoptysis. Collapse of the lung occurred in five cases of this type. Contrary to the findings of others the observations in these cases seemed to indicate a deleterious effect of the collapse on the cavities. The authors believe that the markedly increased negative pressure was an important factor.

6. Lung tumor. Partial lobar collapse occurred in five cases. Whether the tumors were in an upper or a lower lobe, the free exudate if any was present extended from a medial point above to a lateral point below. The authors attribute the changes to the change in the pressure produced by the collapse of the lung.

Gianotti M. and Ceruti G. The Action of Phrenico Exeresis on the Respiratory Exchange (Azione della frenicotomia sul ricambio respiratorio). *Arch. ital. di cl.* 1930 XX 743.

The authors briefly review the literature on the changes following phrenicotomy, phrenico-exeresis and pneumothorax and report the results of a series of experiments on dogs with regard to the changes in the respiratory metabolism following phrenico-exeresis.

Three weeks after unilateral or bilateral phrenico-exeresis there was a diminution in the amount of pulmonary ventilation, the consumption of oxygen and the energy requirement. This was most marked when the operation was bilateral. Studies immediately after the phrenico-exeresis demonstrated that the changes appeared within a few hours. Pneumothorax was followed by an increase in metabolism in the first few hours.

PETER A. ROSI, M.D.

Freedman E. The Roentgenological Appearance of Interlobar and Mediastinal Encapsulated Effusion in the Thorax. *Radiology* 1931 XVI 14.

Encapsulated effusions may be divided according to their etiology into five groups: (1) those due to parapneumonic or metapneumonic blood stream infection; (2) those due to lymph stream infection; (3) those due to tuberculous infection; (4) those due to infection from chest wounds; and (5) those due to cardiac incompetence.

Interlobar effusions are characterized by sharply defined band-shaped, wedge-shaped or circular shadows in the region of the interlobar septa. They

must be differentiated from lobar and marginal pneumonia a localized and well-circumscribed caseous consolidations and bronchial carcinoma. In the presence of pneumonia the only roentgenological sign of an interlobar effusion is bulging of the interlobar fissure seen in the lateral view.

Mediastinal pleural effusions are characterized by band shaped wedge shaped or triangular shadows parallel with the vertebral column or the cardiac silhouette. They must be differentiated from pericardial effusions aortic aneurysms paravertebral abscesses and mediastinal tumors. In the diagnosis of both interlobar and mediastinal pleural effusions bronchography is a valuable aid.

WILBUR BAILEY M.D.

### ESOPHAGUS AND MEDIASTINUM

McMillan A.S.D. et al. of the Esophagus  
N. Engl. J. Med. 1931, 1, 4

By the use of the X-ray and a heavy barium paste it is possible to localize esophageal lesions, visualize the pattern of the obstruction and observe and study the function of the esophagus. The accuracy and absolute safety of this procedure make it the method of choice. In the past seven years 921 patients have been thus examined at the Massachusetts Eye and Ear Infirmary to determine the cause of difficulty in swallowing. Of 64 cases with positive findings the lesion was in the upper third of the esophagus in over one half, in the middle third in two tenths and in the lower third in three tenths.

Of 384 cases in which a foreign body was suspected a foreign body was found in 17. The objects included chicken bone, fish bones, open safety pins, a variety of small lead toys and pieces of wood and glass. The effort of the patient to push a foreign body along by swallowing solid food is seldom successful and only increases the trauma. Water does no harm and may wash the foreign body down but if it fails the oesophagoscopy removal is necessary. There is an unfortunate tendency among physicians to pass a bougie or brittle probe to dislodge foreign bodies in the esophagus. The result of this procedure is often a perforation of the esophagus, a fatal passage through the mediastinum into the abdomen with rapidly fatal mediastinitis. After perforation X-ray examination reveals a marked increase in the swelling of the soft tissues and the presence of air or gas in the periesophageal spaces. In the cases reviewed there were a number of deaths due to safety pins.

Of 534 cases of intrinsic lesions of the esophagus cancer was found in 45 per cent. In the majority of cases of cancer the initial complaint was obstruction of short duration yet on first examination the lesion was so extensive that surgical removal was impossible and gastronomy was usually advised.

In 15 per cent of the cases reviewed the lesion was a non-malignant stricture due to a web of mucous membrane. Such webs may be congenital or may develop after the healing of an ulceration or a trauma-

tism of the mucosa. They invariably occur at the level of the episternal notch and are usually very delicate. They require close examination for their discovery with the fluoroscope and may be missed when they are ruptured by the passage of an oesophagoscope with an obturator. The dysphagia is severe as the lesion occurs so high there is no dilatation of the esophagus above it and food is apt to overflow into the trachea causing very severe fits of coughing. Eating therefore becomes a dreaded ordeal. After dilatation the symptoms disappear.

Structures resulting from trauma or ulceration cause a stenosis involving from 2 to 3 cm. of the esophagus. On X-ray examination they usually appear smooth in contour. On account of scar tissue formation in the esophageal wall and around it they do not dilate readily.

Acute spasm at the entrance of the esophagus was found in thirteen of the cases reviewed. Such spasms usually occur in persons in the fifth or sixth decade of life. The subjects are not hysterical and give no previous history of dysphagia. Inability to swallow even water comes on suddenly and lasts for two or three days, function then gradually returning to normal. Fluoroscopic examination shows complete obstruction at the entrance of the esophagus. The barium fills the pyriform sinuses and overflows into the trachea. There is no evidence of paralysis of the muscles of deglutition.

In none of the cases reviewed were syphilitic or tuberculous lesions observed.

Ulcers occur as a rule in the lower part of the esophagus and are usually associated with marked spasm.

Cardiospasm is a blanket term applied to a number of non-malignant lesions producing obstruction at the lower end of the esophagus. Such lesions were found in 20 per cent of the benign cases reviewed. The clinical history is one of esophageal obstruction for many years often starting in the third decade of life. X-ray examination shows a dilated and elongated esophagus which is invariably rotated to the right and twisted at the lower end.

Tumors causing obstruction by external pressure were found in twenty cases. In the majority the site of the tumor was the thyroid. No intrinsic benign tumors were discovered.

Burns causing stricture-like stenoses were found in thirty-one cases. In the majority they were discovered at the level of the aortic arch where there is a normal constriction of the esophagus in the form of a definite indentation of the anterior wall.

Paralysis of the muscles of deglutition has a characteristic picture. An account of the patient's inability to form the bolus on the tongue the barium spill over the side instead of remaining on the dorsum. The patient lifts his head up to allow the barium to drop by gravity instead of going it a push with his tongue. Instead of a motion picture one sees a still. The pyriform sinuses are filled the esophagus is closed and some of the barium invariably escapes into the trachea.

Paralysis of the œsophagus itself or of the diaphragm causing obstruction was not noted in the cases reviewed

Pouches of the œsophagus of the two common types were observed. Pulsion diverticula occur on the posterior wall just below the cricoid level at the anatomically weak point. Traction diverticula are found in the middle third of the œsophagus.

MAURICE MEYERS, M.D.

Guisez, J. Several Cases of Cancer of the Œsophagus Treated Successfully with Radium (Plusieurs cas de cancers de l'œsophage traité avec succès par la radium thérapie) *Bull. m. Soc. d' chirurgie de Par.* 1930 *xxx* 751

The author reports twenty four cases of cancer of the œsophagus which were treated successfully with radium. In all there was complete dysphagia. Fourteen of the patients are still well after four or five years. In the ten cases treated in 1928, 1929 and the beginning of 1930 all disturbance of deglutition has disappeared. In several patients who were gastrotomized the gastric opening definitely closed. Radium treatment is efficacious only when the epithelioma has not passed the limits of the œsophageal wall. Very marked adenopathy and recurrent nerve paralysis are contra indications.

The lesion is rarely discovered at its beginning. Particularly in the aged cancer of the œsophagus is a painless cancer of slow progress which has little tendency to invade other tissues and does not become generalized for a long time. In some forms it has practically no effect on the general condition.

Before treatment is undertaken the diagnosis should be as exact as possible. Œsophagoscopy is the best means of diagnosis. A budding or ulcerous lesion on an infiltrated immobile wall which bleeds at the least contact with the cotton wrapped probe is always cancer. The most favorable cases for radium therapy are those of cancer of the middle third of the œsophagus which is a basal cell epithelioma.

In the first treatments the radium is put in place under the control of the œsophagoscope. Then the stenotic area being dilated the sound carrying the radium slips down very easily so that the radium can be placed exactly opposite the tumor.

The author uses a non metallic sound in which are placed the Dominici tubes with a platinum sheath of 1 mm. A sufficient number must be used to irradiate the tumor throughout its extent. Treatment is given for five or six hours every day for at least fifteen days with an occasional interval of one or two days of rest if necessary. It is neither dangerous nor painful. In the first treatments there may be excessive salivation and some nausea but on the whole the sound is well tolerated. A sensation of burning after a few treatments can be easily soothed with alkaline solutions.

Even when the treatment is only palliative it gives the patient the illusion of cure because he again becomes able to swallow semiliquid food.

PAGE

## MISCELLANEOUS

Bittner, K. The Surgical Treatment of Chest Injuries (Die chirurgische Behandlung der Brustverletzungen) *Gyógyd.* at 1930 1 480

The author reviewed 413 cases of chest injuries which were treated at the St. Roche Hospital. He compared war and civil gunshot injuries of the chest and found that those of peace times are definitely more benign but the complications and mortality are very similar. The prognosis in thoracic injuries is rather poor although at the outset it does not seem so unfavorable. There are usually 3 outstanding features:

1. The profound depression of the patient which gives the impression that he is dying. This is similar to that observed in patients with concussion of the brain. However it disappears in a few hours.

2. Associated involvement of the abdomen. This is frequent but is seldom mentioned in the literature. The disease picture simulates that of an abdominal catastrophe. The abdomen is retracted and rigid and the passage of feces and flatus ceases. Abdominal injury can be ruled out only by constant observation. The manifestations improve in a short time.

3. A higher mortality in the first twenty four hours than later. Blunt trauma to the chest may produce shock which masks the injuries that are present. Sometimes reflex cardiac death occurs. These cases are called concussions of the chest.

Similar symptoms to which may be added hemorrhage from the mucous membranes of the head and neck are caused by compression of the thorax. Contusion of the chest may also produce these symptoms but the picture may be complicated by injury to the thoracic organs such as rupture of the heart or lung. Pneumonia is a frequent complication while lung edema and dry pleurisy are less common. Complications occur frequently.

Injury to the chest wall brings all of the thoracic organs into causal relationship. Rib fracture are considered minor injuries because the numerous complications which in 20 per cent of the cases cause death are not taken into account. It is customary to immobilize such fractures with adhesive strips. The author considers this procedure incorrect because the pain and restricted breathing may result in inadequate pulmonary ventilation and pneumonia. In his opinion it is better to inject novocain between the fracture fragments to relieve the pain and assure good ventilation of the lungs. In hemorrhage when there is no immediate danger an expectant attitude is proper. This is true also in subcutaneous emphysema if the condition does not spread too rapidly. When it spreads quickly aspirating needles should be inserted to evacuate the air. The author believes abdominal symptoms are caused by the sympathetic nerves.

Bittner has seen 16 cases of chest injury from stab and knife wounds. In a large number of them the wound was due to attempted suicide. The treatment depended on whether the heart was injured or

not. If a cardiac injury was present it was usually fatal particularly if the coronary arteries were damaged. If not the patient could possibly be saved by surgery. Surgical intervention was necessary if the internal mammary artery was injured. The wound was exposed and the vessel ligated. Needle injuries required no intervention; complications were rare. In hæmorrhage the treatment was conservative consisting in the use of ice bag, calcium horse serum and gelatin. Abdominal injuries were also observed; in these cases surgery was employed. If the wound in the diaphragm was large it was repaired through the chest whereas if it was small it was repaired through the abdomen. The greatest danger of the abdominal injury was suppurative peritonitis.

Gunshot injuries are associated with the greatest dangers and most frequent complications and carry a mortality of 50 per cent. The injured person falls immediately and loses consciousness. Three distinct layers of injury were found: the immediately damaged tissue, the indirect contusion and the molecular concussion. Foreign body infection and hæmorrhage may appear later a time. The dangers of gunshot injuries of the chest are increased by

pneumothorax and aneurism formation. Pneumothorax and its sequelæ are the most frequent complications of these injuries. If the patient survives the reflex disturbances he usually dies of the sequelæ. In such cases the patient was treated surgically as long as there was hope of saving him. In all other cases he was treated conservatively with absolute bed rest, sedatives, morphine, ice, etc. He was put up on pillows and alcohol and oxygen were administered. If complications developed they were treated by the methods mentioned. If suppuration occurred rib resection was done.

In judging gunshot injuries it is important to know whether or not the missile is still in the thorax. The mortality of perforating injuries is double that of penetrating injuries. In determinations of disability for insurance it is important to decide whether the injury may lead to tuberculosis. Many claim that the injury reduces the resistance of the lung tissue and therefore if not the cause it is at least a factor predisposing to tuberculous infection. This possibility cannot be disregarded. Therefore treatment depends upon the careful evaluation of the case. Conservative results are generally satisfactory.

VON LOBNAYER (2)

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Meleney F L Harvey H D and Jern H Z  
Peritonitis I The Correlation of the Bacteriology of the Peritoneal Exudate and the Clinical Course of the Disease in 106 Cases of Peritonitis *Arch Surg* 1931 xxi 1

The great majority of patients with peritonitis who come to a general hospital have lesions of the appendix. If the inflammation is limited in extent the peritoneal exudate yields very few organisms on smear or culture.

If the appendix has not perforated the disease is usually not fatal whether the appendix is gangrenous or simply inflamed the course is mild and the patient is able to return to his home after about two weeks.

If the appendix has perforated the inflammation is frequently extensive the peritoneal exudate is profuse and yields a great number of bacteria of several different species. The disease is frequently fatal the course is stormy and the patient who survives must stay in the hospital about twice as long as if perforation had not occurred.

In gangrene of the appendix examination of the peritoneal fluid yields no evidence that the spore forming anaerobic bacteria either pathogenic or non pathogenic are particularly active. Of 30 cases in which perforation of the appendix had taken place *Clostridium welchii* was found in only 12 (40 per cent) whereas *Bacillus coli* was found in all. Of 9 cases of gangrene of the appendix without perforation *Clostridium welchii* was found in none. Of 6 fatal cases of perforative appendicitis *Clostridium welchii* was found in only 2 (33 per cent) its incidence in this group being lower than its incidence in the whole group of cases of perforative appendicitis. If the cases of perforative appendicitis are included with those of other gangrenous lesions of the appendix it is found that the anaerobes were present in practically the same percentage as in the cases without gangrene.

Perforative lesions of the small intestine promptly caused severe symptoms. There was usually extensive tenderness over the abdomen without distention. Total white blood cell counts were frequently low and showed a relatively high percentage of polymorphonuclears. In perforations of the upper intestinal tract organisms were not usually seen on smear and in early cases no growth was obtained on culture. Perforation of the lower part of the small intestine was invariably fatal. After such a perforation the peritoneal exudate was usually profuse and turbid showed many organisms and yielded a bacterial growth. In non perforative lesions of the small intestine the severe symptoms

were due as a rule to intestinal obstruction with or without gangrene of the intestine. Bacteria were usually found on culture of the peritoneal exudate but smears indicated that they were not numerous and in most of the cases recovery resulted.

In cases of perforative lesions of the large intestine the symptoms developed more slowly and although these lesions occurred in older persons and more bacteria were found in both the smears and the cultures including *Clostridium welchii* which was present invariably the large majority of the patients recovered.

Perforative lesions of the gall bladder were always fatal. Bile irritation seems to be a potent factor. Several investigators have reported that even sterile bile will cause peritonitis which may be followed by the appearance of organisms in the peritoneal exudate.

In three fifths of the cases coming to the hospital within twenty four hours after the onset of symptoms the lesion was local the symptoms were mild the peritoneal exudate was not profuse and organisms were rarely seen in smears or obtained in cultures. Diffuse peritoneal inflammation was rarely found in cases with symptoms of less than twelve hours duration but was usual in cases in which the symptoms had been present longer. In cases of diffuse peritonitis the condition was more severe the peritoneal fluid was profuse and usually many organisms were seen in smears and obtained on culture. Complications were frequent and a third of the patients died. When abscesses had formed the history was usually of long duration although the symptoms were only moderately severe and there was much thick fluid which by both smears and cultures was found to contain many organisms. The mortality was just half that of the cases of diffuse peritonitis. The 3 most common organisms namely the *Bacillus coli* the green producing streptococcus and the *Clostridium welchii* were more numerous in the cases of diffuse peritonitis than in those of local peritonitis and most numerous in the cases with abscess. Nevertheless the mortality was lower in the cases with abscess than in those of diffuse peritonitis.

Smears of the peritoneal fluid made at the time of operation and compared with cultures seemed to be of prognostic importance. In every instance in which smears showed no organisms and cultures yielded no growth and in every instance in which fewer species appeared in cultures than were seen in the smears recovery resulted. These observations therefore warrant a favorable prognosis. When more kinds of organisms appeared on culture than were seen in the smears more than one fifth of the patients died. When all of the forms seen in the



smears grew out the mortality was still higher death resulting in more than one fourth of the cases. The last two conditions therefore warrant a guarded prognosis.

When cases of peritonitis were divided into groups according to the number of bacteria appearing in the peritoneal exudate it was found that 35 cases yielded no organisms, 1 yielded 1, 14 yielded 2, 15 yielded 3, 19 yielded 4, 9 yielded 5, and 3 yielded 6 species. In the great majority of the cases in which there was no growth in cultures the disease was limited to the focus of infection. When viable organisms were present there was usually an acute diffuse peritonitis. Certain symptoms and signs showed a steady increase in severity corresponding to the number of species present. Others were more severe in the group with from 1 to 3 species than in the group with from 4 to 6. This suggests that certain species are more potent antagonistic effects are produced by one bacterial species on another in the production of certain symptoms and antagonistic effects in the production of other symptoms.

There were 3 outstanding bacterial species in this series of peritoneal exudates. Non-hæmolytic bacillus coli was present in 87 per cent of the cases in which bacteria were found, green producing streptococcus in 49 per cent, and clostridium welchii in 38 per cent.

Peritonitis was usually a polymicrobial disease. In only 11 of the 77 cases that yielded growth was a single species found. Therefore it was virtually impossible to evaluate the rôle played by each one. Any grouping to bring out a single factor was nullified by the presence of many common factors. The disease was no worse when more than one organism was present. All of the evidence seems to show that clostridium welchii and the other spore-forming anaerobes as well as the anaerobic streptococci and diphtheroid bacilli do not appreciably increase the severity of the disease or the chance of a fatal outcome.

In the cases of acute local peritonitis there were no deaths. Of the cases of diffuse peritonitis a third were fatal and of the cases of abscess a sixth were fatal.

Every perforation of the ileum was fatal but only 1 of 5 of the perforations of the colon. Only 1 patient with a single infecting organism died. In the fatal case the organism was a hæmolytic streptococcus.

When from 4 to 6 species of organisms were present the mortality was almost identical with that in the case with from 1 to 3 species.

A third of the patients were under twenty years of age but none of this group died. Of 30 between twenty and forty years of age only 3 died. After the fortieth year the mortality increased with age.

Variations in the outcome in patients of the same age who seemed to have practically identical pathological and bacteriological conditions indicate that individual resistance to peritoneal infection is important.

HOWARD A. MCKNIGHT, M.D.

Rewbridge A. G. The Etiological Rôle of Gas Forming Bacilli in Experimentally Induced Peritonitis. *Surg. & Obst.* 1931, 25.

The author investigated the cause of death in bile peritonitis by carrying out experiments in dogs. As a peritonitis identical with bile peritonitis as produced by the bacillus welchii he concludes that bile peritonitis in dogs is caused by infection. He believes that the bacillus welchii invades the peritoneal cavity as a result of permeability produced by the local action of the bile salts in the peritoneal cavity.

M. HERRICK, M.D.

## GASTRO INTESTINAL TRACT

Comfort M. W. Submucous Lipomata of the Gastrointestinal Tract. A Report of Twenty Eight Cases. *Surg. & Obst.* 1931, 11.

Lipomata of the gastrointestinal tract are divided anatomically into two main groups, the submucous and the subserous. A small number are both submucous and subserous. The submucous variety are more common than the subserous.

The author reports from the records of the Mayo Clinic 3 submucous lipomata of the colon which produced symptoms and were removed surgically and 25 which did not produce symptoms and were found incidentally at operation or autopsy. In addition they abstract the reports of 68 such tumors reported in the literature. These tumors together with 85 reported by Stetten and by White and Judd make a total of 181. One hundred and fourteen of the 181 caused symptoms.

Submucous lipomata form one of the more important subgroups of benign gastrointestinal neoplasms. Clinically they rank in frequency with myomata. They are less common than adenomatous polyps and more common than tumors of other types in the small and large bowel. In the stomach they are apparently among the least common of benign neoplasms.

They seem to occur most frequently in the stomach, the duodenum, the lower part of the ileum, the cæcum and the ascending colon and twice as commonly in the large intestine than the small intestine.

They may be single or multiple, sessile or pedunculated, and may occur in association with lipomata of the subserous variety. They are equally common in males and females.

The symptoms are those of irregularity in the force and rhythm of peristalsis, obstruction of the stomach, especially at the pylorus, and of the small and large bowel, intussusception and ulceration incident to the circulatory changes caused by pressure and intussusception or external trauma.

Before operation it is usually possible to determine only the presence of a benign tumor. A definite diagnosis of lipoma can be made only when the neoplasm can be seen through the proctoscope or has prolapsed externally, or when biopsy can be determined.

a lipoma of the rectum or attached to the apex of an area of intussusception which prolapses into the rectum

**Martini T. and Curutchet R. E. Leiasthenia of the Stomach. First Results of Its Treatment by Gastrotonometry** (La leiasthenia del estómago su tratamiento por la gastrotonometría nuestros primeros resultados) *Se mana méd* 1930 *xxvii* 1954

Martini and Curutchet having made daily use of gastrotonometry for two years have collected forty four cases (some with hypotonia others with true gastric atony and all complicated by second or third grade dolicho-astry) in which the course of treatment was completed. They conclude from the results obtained in these cases that gastrotonometry is the most effective procedure for the treatment of primary atony of the stomach. They say Every doctor should be familiar with its technique and should apply it whenever he is dealing with a gastric atony which is resistant to ordinary treatment.

In 90 per cent of the cases of atony particularly atony of the stomach the condition is a reflex of a general leiasthenia an asthenia of the smooth muscle fibers. Gastrotonometry acts not only to relieve the symptoms but also to stimulate the smooth musculature. It constitutes a new method of diagnosis prognosis and treatment of alterations of the motor function of the stomach.

Martini and Curutchet have studied directly under Gaultier of Paris and use Gaultier's gastrotonometry technique and instrumentation with slight modifications. The therapeutic effects of the method are produced by a mechanical or physical action and by a chemical action. The mechanical action consists of massage of the gastric wall by the insufflation and subsequent exsufflation of gas. This energizes the smooth muscle fibers thereby causing an increase in gastric peristole and peristalsis. The chemical action is evident in cases of simple atony and even in those of vertical dilatation or enlargement of the stomach the oxygen apparently acting as a specific chemical excitant of the musculature. In cases of gastric hypertonia gastralgia and certain dyspepsias the insufflated carbon dioxide acts in the same way as gaseous potions. The mechanical effect however seems to be of chief importance because similar results are obtained by using air alone although not so quickly as with pure oxygen. The course of treatment (lasting from two to three months) may be given by the ambulatory or combined method. It is entirely harmless. Its only contra indications are ulcerous and neoplastic lesions of the stomach.

In all of the cases of gastric atony treated by the authors there was a rapid and continuous increase in the appetite which coincided with the increase in gastric tonicity. The patients were cured or markedly benefited although they did not gain weight. Anorexia disappeared in 70 per cent of the cases reviewed. This method obviates the use of bandages

which are so troublesome to the patient. It failed in only three (about 7 per cent) of the cases reviewed. In two cases in which the results were doubtful most of the disturbances were corrected. One of the patients who was not benefited by the treatment presented the Elsner syndrome and another was suffering from congenital Cienard Lane disease with a pseudo ulcerous syndrome. In some of the cases recovery was confirmed eight twelve and fourteen months after termination of the treatment.

MARGUERITE P. SLOAN

**Renander A. Roentgenologically Studied Cases of Gastric Tuberculosis** (E nige roentgenologisch beobachtete Fälle von Magentuberkulose) *Acta radiol* 1930 *xi* 636

Though pulmonary tuberculosis and tuberculosis of the intestine are very frequent tuberculosis of the stomach is very rare. Local tuberculosis of the stomach is usually of the ulcerous or the hypertrophic type. Poncet has described also an acute inflammatory form. As a rule the localization is in the anastomosis ventriculi. Complications in the form of hæmorrhages and perforations are rare. The symptoms are not characteristic. The prognosis is serious.

The author has seen three cases of clinically primary tuberculosis of the stomach. In two of them however roentgen examination disclosed old completely healed pulmonary foci. In one case the process was localized in the body of the stomach and in two cases in the anastomosis ventriculi. In two cases the diagnosis was verified by microscopic examination. In one case a mesenteric gland was found. The symptoms were not characteristic. In two cases resection was done and in one case gastroenterostomy.

**Eusterman G. B. Gastric Syphilis. Observations Based on Ninety Three Cases** *J Am M Ass* 1931 *xvii* 73

Most of the patients whose cases are reviewed by the author were between the second and fourth decades of life. The average age was about thirty six years. The gastric disturbances were usually marked and progressive with an average duration of two years. The symptoms depended in large measure on the site and extent of the lesion and the complications. Achlorhydria or subacidity especially the former was the rule. A palpable mass retention nausea anorexia, anemia cachexia gross hæmorrhage and occult bleeding were infrequent in contrast to their incidence in carcinoma a disease in which the laboratory data usually simulate those of gastric syphilis. The roentgenological manifestations although not pathognomonic were those of circumscribed or diffuse involvement of the gastric wall rather than of intrusion into the lumen by a growth which produced contraction of a variable degree stiffening a decrease of mobility and absence of peristalsis. As a rule the pylorus was gaping, less frequently it was obstructed. The diagnosis was

often inferential because of the frequent absence of a palpable mass corresponding to the position of a filling defect and because of the disproportion between the patient's general condition and the extent of the gastric involvement as revealed by roentgenoscopic examination.

Four of the ninety-three patients observed at the Mayo Clinic were adults with stigmata of hereditary syphilis. One patient was a negro. Twenty-eight of the ninety-three patients were subjected to surgical exploration and to operation of one kind or another. Resected specimens were obtained in fourteen clinically authentic or probable cases. Biopsy specimens of the mucosa of the stomach were obtained in five others. All of the patients were traced for at least ten years and some as long as seventeen years. The patients who were not operated on were found to be living after an average period of four years and eleven months.

Sixty-five of the ninety-three patients were men and twenty-eight were women. The ages of 83 per cent of the total number ranged between twenty-nine and forty-eight years. About half of the total number were in the third decade of life. Almost two-thirds stated that epigastric pain or discomfort had come on immediately after eating. An increase in the solidity or amount of food or fluids caused a proportionate increase in the discomfort. A feature common to all cases was the progressively severe nature of the clinical course. By the time they came under observation the majority of the patients were in a state of partial or advanced starvation and were taking only liquid nourishment and in reduced amounts. In the advanced stage the syndrome was usually that of a stomach greatly reduced in capacity, such as the stomach seen in limit plastica.

The second group of cases was classified as of the pseudo-cancer type. In this type the symptoms were of gradual onset. At the outset the discomfort was mild and began about half an hour after meals. Relief from food or liquids was an constant incomplete or absent.

The third group of cases was classified as of the ulcer type. In this group the pain food intolerance seen in ulcer was outstanding throughout all or part of the duration of the complaint although the sequence was not as regular or complete as in duodenal ulcer. Pyloric lesions with or without retention and the occasional more extensive lesion elsewhere in the stomach usually gave rise to this type of subjective complaint.

There were only five trustworthy instances of bleeding in the series. In two of these there was definite evidence of associated hepatic lobulation and in the others undoubtedly syphilitic changes in the liver had taken place as in the ulcer. In only fourteen cases was anemia present. This was of the secondary type and usually was not marked. Pellagra developed in two cases neither of the patients resided in the pellagrous belt. In twenty-two cases there was gross retention of gastric contents usually the result of obstruction from prepyloric

involvement but occasionally due to biliary contraction in the middle or upper third of the stomach. A palpable mass was present in 20 per cent and a definite sense of resistance was found over the involved area in most of the cases in which the patients were thin and dehydrated. Achlorhydria was present in 85 per cent of the cases.

Multiple gastric lesions on the bases of diffuse proliferative infiltration or of a nodulo-ulcerative lesion corresponding to the nodulo-ulcerative syphilis are common manifestations of gastric syphilis. The question arises as to how often a solitary syphilitic ulcer may manifest itself and may be visualized on roentgenological examination in the manner in which simple chronic gastric ulcer is manifested and visualized. Two of the four cases of tuberculous ulceration of the stomach were diagnosed as ulcer. In eight of the cases in which roentgenological examination was made ulcer was diagnosed and in several instances the niche was specifically mentioned.

Because of the protean character of syphilis one must at all times maintain a suspicious attitude toward the possibility of its presence. On the basis of surgically demonstrated histologically confirmed lesions and clinically cured patients who have been traced for a considerable time, Lusterman has formulated a clinical syndrome. Gastric resection if the patient survives the ordeal will do no harm if the nature of the pathological process is recognized and adequate anti-syphilitic treatment is also instituted but the number of times this extreme procedure is advocated will be in inverse proportion to the diagnostic acumen and the therapeutic resources of the physician or surgeon. Eusterman believes that when the disease is strongly suspected surgical intervention is unjustifiable even in the presence of consistent retention of the gastric contents. It is the policy at the Clinic to err on the safe side when in doubt since in a number of cases of proved gastric syphilis the response to treatment was slower than usual.

Emery E. S. Jr. and Monroe R. T. Peptic Ulcer. The Diagnostic Value of the Roentgen Ray Before and After Treatment. *A. J. R. ntg.* 1931, 5, 57.

The authors state that of 510 cases of peptic ulcer which were examined with the X-ray the roentgen diagnosis was found to be correct in 93 per cent. However, after the presence of an ulcer has been established, other questions must be answered before intelligent treatment can be undertaken. In seeking a solution of these questions it is advisable to employ some of the older methods as well as roentgen ray examination.

The investigation reported in this article was made largely to determine the value of the roentgen ray in discovering whether or not an ulcer has healed under treatment.

A gastric ulcer is reported as healed when the deformity or niche has disappeared but a duodenal ulcer is frequently reported as healed when the

deformity persists Of 140 cases studied the deformity of the duodenum persisted in 132 (94.3 per cent) This means either that the disease is chronic or that the deformity remains after healing If the latter is true it is necessary to be able to recognize in the deformity characteristics which distinguish the healed from the active ulcer

The authors attempted to discover such roentgen characteristics by studying a large series of cases at intervals during the course of treatment They also classified the various types of deformities giving careful attention to the duration of symptoms in each type They concluded that there are no characteristics differentiating a healed ulcer from an active ulcer Moreover their data supported the theory that duodenal ulcer is a chronic disease which is rarely cured by treatment

CHARLES H HEACOCK, M D

Morley J and Twining E W The Mechanism of Deep Tenderness in Gastric and Duodenal Ulcer *Brit J Surg* 1931 XVIII 376

The authors emphasize that in a study of pain due to lesions of the stomach and duodenum it is most important to distinguish clearly between spontaneous visceral pain and objective pain Mackenzie and Lennander have proved that the stomach is insensitive to the ordinary mechanical chemical and thermal stimuli which cause pain when they are applied to the sensory nerves Opinion varies greatly concerning the stimulus necessary to produce pain of gastric origin Such pain has been attributed to increased intragastric tension (Hurst) stimulation by hydrochloric acid (Palmer) and vascular congestion in the ulcer region (Kunsella) Spontaneous visceral pain in gastric and duodenal ulcer sometimes occurs without any tenderness on pressure and tenderness on pressure may occur without spontaneous pain Visceral pain is felt in the center of the epigastrium but is not accurately localized by the patient and does not move with a change in the position of the stomach Deep tenderness however is very accurately located

This article is based upon examinations of twenty-four patients who presented both a demonstrable ulcer and a localized area of deep tenderness In each case the pain point was charted in the clinical examination in the supine position in a lateral position and with the patient standing erect The empty stomach was then visualized by barium in the erect position the point of most severe deep tenderness marked with a metallic ring and a roentgenogram taken The patient was then placed in the supine position with the ring left in situ the point of greatest tenderness found in this position marked by a second ring and another roentgenogram taken

From these investigations the authors conclude that the point of maximum tenderness and the ulcer usually correspond exactly When a variation was noted in the films in the cases reviewed it was well within the limits of legitimate error The area of localized deep tenderness on the abdominal wall

corresponded generally to the ulcer crater and shifted its position with the ulcer These observations are incompatible with Mackenzie's theory of a viscerosensory reflex Deep tenderness is believed to be due to stimulation of the sensitive parietal peritoneum by contact with the inflamed area of stomach or duodenum at the site of the ulcer with radiation from the nerves of the parietal peritoneum to the more superficial branches of the same sensory cerebrospinal nerves

JOHN W NUZZUM, M D

Sullivan A J The Role of Surgery in the Treatment of Peptic Ulcer *New England J Med* 1931 CCIV 191

The author gives the gastroenterologist's views of the place held by surgery in the treatment of peptic ulcer In tracing the trend of treatment since 1901 he states that today in the better clinics there is close cooperation between the internist and surgeon

Peptic ulcer is defined as a chronic recurrent disease which is fundamentally a medical problem but frequently requires surgical interference

The indications for surgery in gastric ulcer are (1) perforation (2) repeated and severe hæmorrhage (3) the possibility of malignancy (4) hourglass deformity (5) pyloric obstruction (6) absence of healing or the occurrence of only partial healing after thorough medical treatment and (7) recurrence in spite of thorough medical treatment

The indications for surgery in duodenal ulcer are (1) perforation (2) repeated or severe hæmorrhage (3) pyloric or duodenal obstruction (4) absence of healing or the occurrence of only partial healing after thorough medical treatment and (5) the development of a recurrence in spite of thorough medical treatment

Acute perforation whether duodenal or gastric is an indication for immediate surgical intervention Early diagnosis and operation are of prime importance Simple closure is considered the procedure of choice in most cases

In cases of hæmorrhage surgery is usually contra-indicated when the patient is still bleeding Rare exceptions to this rule are cited A patient who presents himself with a bleeding ulcer and gives a history of hæmorrhage is not a surgical problem until after thorough medical treatment has failed to cause improvement If the patient is under medical management when the hæmorrhage occurs surgery is indicated When possible the ulcer should be excised

In a large percentage of cases showing a six hour residue of the roentgen test meal the lesion is an active ulcer with spasm œdema and congestion causing temporary obstruction which can be relieved by medical management Only cases of obstruction due to cicatricial deformity should be subjected to operation and these are greatly benefited by pre-operative medical care In cases of obstruction due to cicatricial deformity the best results are obtained from gastro-enterostomy



evaluations and in definitely establishing a diagnosis because the roentgen findings cannot always be interpreted exactly. Moreover it is necessary for the physician and surgeon to know the difficulties and deficiencies of such roentgen examinations.

MARGUERITE P. SLOAN

Rankin F. W. and Bergen J. A. Vaccination  
Against Peritonitis in Surgery of the Colon  
Further Report *Arch Surg* 1931 xxi 98

In December 1928 Rankin and Bergen reported 61 cases of tumor of the colon resected after the patients had had the benefit of co operative medical and surgical management. An important part of the treatment was intraperitoneal vaccination. The striking reduction in the mortality in this group as compared with a control group in which operation was performed by the same surgeons under the same circumstances indicated that intraperitoneal vaccination was an important factor guarding against the peritonitis which is the cause of death in more than half of the cases. By October 1, 1929 Rankin and Bergen had increased to 300 the series of cases in which vaccination and operation had been done at the Mayo Clinic.

Peritoneal contamination has always been considered one of the most serious menaces to successful surgical treatment of the colon. Therefore any agent which obviates peritonitis or militates against it is a highly desirable adjunct to the surgeon's armamentarium. It is evident that vaccination alone would fail to give satisfactory results and that it must be combined with other measures.

Recently Rankin and Bergen made cultures from 18 malignant colonic lesions immediately after their extirpation. The results obtained seem to bear out the assertions made relative to the infection in the peritoneal tissues in immediate juxtaposition to the growth. The lesions of the bowel from which the cultures were made included carcinomata of the cæcum, ascending colon, hepatic flexure, splenic flexure, descending colon, rectosigmoid and rectum. In 72 per cent of the lesions cultured only green producing streptococci and colon bacilli grew. In 17 per cent no bacteria grew and in the other 11 per cent the cultures were indeterminate. The results suggest that the vastly predominating bacteria in and around malignant lesions of the colon are streptococci and colon bacilli.

Because of this fact and the fact that the visceral peritoneum acts protectively, it seems of vital importance to establish a specific or non specific relationship between intraperitoneal vaccination and the mechanism of its protection.

Five series of rabbits (4 in each series) were injected intraperitoneally with anti peritonitis vaccine, whole autoclaved milk suspensions of killed typhoid bacilli like those used for fever therapy, hypertonic dextrose solution and sodium chloride solution respectively. The 4 animals were killed twelve, twenty four, forty eight and seventy two hours respectively after the injection. It was noted

that the cellular infiltration with polymorphonuclear leucocytes as well as macrophage cells of the omentum was greatest in the animals which had had the anti peritonitis vaccine mixture of streptococci and colon bacilli.

Other series of rabbits, all of the same size and general appearance and all seemingly in good health were given intraperitoneal injections of the same materials: vaccine of a mixture of streptococci and colon bacilli, killed typhoid bacilli, hypertonic dextrose solution, sodium chloride solution and whole autoclaved milk. The injections were made according to methods described by Herrmann and forty eight hours after the last intraperitoneal injection large doses of equal suspensions of living green producing streptococci and colon bacilli were given.

All of the rabbits given injections of milk, half of those receiving typhoid bacilli and half of those receiving sodium chloride solution died with fulminating generalized fibrinopurulent peritonitis, whereas all of those inoculated with anti peritonitis vaccine and all of those receiving dextrose survived.

The method of preparing the vaccine and its administration seem important. The organisms used for the vaccine are procured from the peritoneal exudate in a case of peritonitis. The vaccine prepared from the streptococci and colon bacilli so obtained is injected in physiological sodium chloride solution with a dulled spinal puncture needle into the peritoneal cavity.

Important pre operative measures which render convalescence smoother and lower the mortality in these cases of malignant disease of the colon are thorough cleansing of the large intestine and the relief of obstruction. This has been accomplished in various ways including the giving of a residue free diet consisting primarily of fruit juices and candy, up to 3,000 calories are consumed in each period of twenty four hours. A laxative is administered and the colon is irrigated with physiological solution of sodium chloride twice daily.

Between January 1 and October 1, 1929 operation was performed in 222 cases in which vaccine was given and in 58 cases in which vaccine was not given. A review of 11 deaths from peritonitis in the 22 cases in which vaccine was given suggests consideration of the types of operations. The patients operated on had all forms of surgical maneuvers that are applied to the colon at the Mayo Clinic. Many of them of course underwent or more major surgical operations as in all graded resections. For this reason the small number of 11 deaths from peritonitis is noteworthy.

These 11 cases include some in which the usual procedures in operating on the colon at the Mayo Clinic were employed and some in which unusual procedures were used. In some of the cases of greatly debilitated patients very extensive operations were necessary.

The 58 patients with malignant lesions of the colon who were operated on during the same period and did not receive vaccine had lesions of similar situa-

tion and nature to those of the 222 who received vaccine. Of these 58 patients 13 died of peritonitis the operative procedures on the 13 included 4 abdominal resections 1 Mikulicz operation (first stage) 1 ileostomy 1 caecostomy 1 colostomy 1 ileocolostomy 3 posterior resections of the rectum and 1 secondary resection of a lesion of the left part of the colon.

**Allende C. I.** Postoperative Complications of Appendicitis (Compendio de las operaciones de la appendix). *Sem. a med.* 93 1 697.

The author reviews 309 cases of appendicitis which he has operated upon since 1915. Two hundred and six were chronic and 13 were acute. The 103 acute cases are reported briefly. In the total number of cases there were no deaths all of them in acute cases. In 49 acute cases in the beginning stage and in 20 with simple recently formed adhesions there were no deaths whereas in 13 in the period of acute abscess there were 4 deaths a mortality of 30 per cent. In 15 cases of perforated appendicitis with localized peritonitis there were 3 deaths a mortality of 20 per cent and in 6 cases with diffuse peritonitis there were 3 deaths a mortality of 50 per cent. In the 34 cases of acute complicated appendicitis the mortality was the same 29 per cent whereas in the uncomplicated cases there was no mortality.

To prevent postoperative vomiting the author gives from 30 to 40 gm. of alkaline powder dissolved in a liter of water for three days preceding the operation to neutralize gastric acidity and 10 gm. of bicarbonate of soda in half a glass of water ten minutes before the operation to neutralize the acidity that will be caused by acid reaction of the stomach contents with chloroform. This neutralization is particularly important in the cases of patients with Stiller's asthenic habitus. If persistent vomiting occurs in spite of it the stomach is irrigated with a hot alkaline solution with the patient lying on his abdomen and the bed tilted so that his head is down. The author prefers local to general anesthesia as it rarely causes vomiting. In recent years he has been using spinal anesthesia induced with tutocain. Evacuation is apt to occur after the Roux incision. Allende has only seen one case of evisceration after McBurney's incision and in that case evisceration of the incision had been necessary. When it is necessary to drain a generalized peritonitis he uses Jalaguier's incision. In no instance has this been followed by evisceration.

Infection of the wound predisposes to evisceration and causes abscess and toxæmia. Its frequency can be greatly reduced by carefully protecting the lips of the wound during the operation and cleansing the abdomen with ether. True mucle abscesses are very rare but the aponeurosis becomes infected easily. Therefore in cases with suppuration and particularly in the case of septic gangrene the author excises the aponeurosis. In cases with suppuration he also irrigates the wound with naphthol or Dakin's solution. Drainage is indicated in cases with suppuration but not in interval operations. Of

the author's 49 acute uncomplicated cases in which there were no deaths drainage was established in only 8. Allende attributes a great deal of his success in cases in which closure without drainage was done to irrigation of the abdominal cavity with ether.

He thinks fecal fistula is sometimes caused by too persistent a search for the appendix in cases of abscess. It may be caused also by slipping of the sutures or perforation of the fundus of the cæcum. Allende has recently adopted the practice of fixing grafts of omentum over the cæcum and stump of the appendix to prevent such an occurrence. However he has experienced no serious difficulty in curing fecal fistulae. Three of his cases of appendicitis were complicated by paralytic ileus in 2 of them death resulted. Phlebitis developed in only 1 case a case of gangrenous appendix. Two of his patients showed tachycardia after the operation but this was successfully treated with digitalis and adrenalin. In 1 case Allende operated for perinephritic abscess and in 1 for suppurative parotitis. He thinks that chronic tonsillitis is frequently a cause of appendicitis.

AUDREY GOSS MORGA M.D.

**Gabriel W. B.** The Removal of Polyps of the Rectum by the Removal of the Rectum for Confirmatory Section. *B. J. M. J.* 1931 1 32.

While the removal of sections of malignant tumors for microscopic study is often desirable it is frequently dangerous for anatomical reasons and because of the danger of disseminating the disease to healthy tissue. However the rectum and sigmoid are favorable situations for biopsy as these areas are easily approached and the danger of disseminating the disease by the removal of a small piece of tissue is little greater than the danger involved in the passage of feces over the growth.

Gabriel performs biopsy routinely on rectal cancers and believes it should be done also on simple adenomata and papillomata. After the growth has been brought clearly into view with the sigmoidoscope he removes from three to six small pieces with Bauhin's forceps. These sections are then fixed immediately and several of them are mounted together on one slide.

EARL GARSIDE M.D.

**Hilshman L. J.** Some Principles Underlying the Successful Treatment of Some Anorectal Diseases. *J. Lar. et.* 93 1 3.

The examination made for the diagnosis of anorectal disease must include digital examination of the bowel external inspection of the surrounding parts and internal inspection with the use of the anoscope proctoscope and sigmoidoscope. In many cases it is very difficult to feel an internal hemorrhoid even when it is of considerable size.

In the determination of the presence location number size and ramification of perianal and perirectal fistulae the injection of bismuth paste through an external opening followed by stereoscopic roentgenography and manipulation of the parts under the fluoroscope is essential. For the diagnosis

of many diseases of the rectum and colon a bacteriological examination of smears of anorectal discharges is necessary.

While in the great majority of diseases involving the anus and rectum a permanent cure can be obtained only by a surgical procedure temporary relief can often be given by non surgical methods. Conditions such as pruritus ani anal fissure and rectal ulceration moderate internal hemorrhoids and prolapse can frequently be so relieved by local non operative measures that the result is quite satisfactory to both the patient and the physician. However the treatment must be repeated at intervals.

The destruction of internal hemorrhoids with the use of escharotics electricity or the actual cautery is frequently followed by deformity due to stenosis from faulty or excessive cicatrization resulting from fibrosis and sometimes by necrosis. No procedure should be used which will destroy more than the lesion. A clamp operation is a blind operation. Important principles to be observed in the surgical removal of internal hemorrhoids are conservation of the blood supply and the prevention of unnecessary operative hemorrhage. In the technique used by the author an absorbable catgut ligature is placed around the nutrient vessels of each hemorrhoid just above the point at which they enter the hemorrhoid. Each of the three hemorrhoidal arteries and veins is treated in this manner before it is incised.

In the exposure of an internal hemorrhoid an ellipse of mucous membrane equal to the excess mucous membrane covering the lesion is removed. The incisions for this purpose and all other incisions in the anorectal canal are made in a longitudinal direction or parallel with the long axis of the large bowel. The elliptical opening produced exposes the diseased vessels forming the hemorrhoid. These vessels are picked up with the thumb forceps and excised and all varicose vessels down to the sphincter are removed. By this procedure the muscle is exposed to a degree not possible by the clamp or blind operation and the danger of injury to the sphincter is greatly reduced.

Conservation of the sphincters is important. When caudal or spinal anesthesia is used dilatation of the anal sphincters is unnecessary.

Whenever possible suturing of wounds in the mucous membrane of the anorectal region should be avoided.

Every wound made in the anorectal canal must be carried down through the anal aperture to the perianal skin and all incisions must be made radial to the orifice and parallel with the radiating skin folds. Care must be taken to avoid leaving pockets at the outer ends of incisions.

The introduction of a tube pack or tampon into the rectum after operation is contra indicated. If ligation is done before the cutting a pack to control hemorrhage will be entirely unnecessary.

As soon as sensation returns to the parts any material inserted into the rectum by the surgeon will

produce the same stimulation as a stool and thereby cause peristalsis with unnecessary pain.

The use of drugs such as opium bismuth salol and astringent proprietary preparations to lock up the bowels should be avoided. In the author's cases large doses of mineral oil are given on the evening following the operation and every evening thereafter to facilitate bowel movements when they are started again.

The insertion of a probe blindly into a fistulous opening may result in the production of false or traumatic tracts. Of greater aid in the examination of a fistula is the injection of fluid bismuth paste into the external opening of the tract. If more than one external opening is present the bismuth paste will emerge from the other external openings as well as from the internal opening. Through an anoscope it can be seen at the site of the internal opening or openings. Stereoscopic roentgenograms of fistulous tracts and cavities made after the injection of bismuth give a clear picture of the size location direction and relations of the fistulous tracts.

The treatment of a fistula is governed by the type of the tract. An external sinus requires merely enlargement of the opening to convert it from a bottle shaped cavity to an open draining wound. Fistulae sometimes heal after the injection of bismuth paste but as a rule require incision or excision.

As a fistula is the second stage of a condition which begins as an abscess the prophylactic treatment of fistula is complete drainage of the abscess. An abscess should be punctured as soon as it is recognized in order to relieve the tension within it and prevent its spontaneous rupture in an unfavorable area. The patient should be told that the puncture is merely a temporary relief measure and that the abscess must be operated upon within the next day or so for its complete removal and drainage.

In the after treatment of abscesses as well as of fistulae gauze packing should be avoided.

In order to prevent agglutination of the skin or mucous surfaces the author inserts pieces of thin rubber dam or gutta percha tissue for forty eight hours.

When several fistulous tracts are present and undermine the sphincter they should all be injected with bismuth paste and a silk suture should be drawn through each of them and tied loosely around the sphincter to serve as a drain and as an indicator of the location of the tract. Only one tract undermining the sphincter should be operated upon at a time and this tract should be allowed to heal completely before another is treated.

In dealing with conditions of the lower intestines of a more grave character such as stricture obstruction chronic ulcerative colitis and carcinoma and in the treatment of complicated anal fistulae it may become necessary in order to secure a clean surgical field to place the colon temporarily at physiological rest by temporary colostomy.

In all disease conditions of the anal canal in which pain particularly spasmodic pain is an important



factor physiological rest of the sphincters is indicated. This is true particularly in cases of fissure and ulcer of the anal canal. Rest of the sphincters followed by immediate healing may be obtained by making an incision across the sphincter muscle at right angles to the fibers through the bed of the fissure or ulcer and excising the sentinel pile under local or caudal anesthesia.

Early constipation is favored by encouraging the patient to sit up, walk, and defecate normally as soon as he is able to do so by giving a diet which will produce a soft but formed daily stool by avoiding the use of saline cathartics and overindulgence in enemas and by the use of hot sitz baths.

J. FRANK DOUGHERTY, M.D.

### LIVER GALL BLADDER PANCREAS AND SPLEEN

Kukor I. Experiences in 1500 Operations for Gall Stenosis (E. F. Hruzenko, 500 Gallstones Operated on). *Gyógyd.* 1934, 484.

In the introduction to this article the author states that so long as we are unable to prevent the formation of gall stones, early operation is the most conservative treatment. This opinion is based on experience in 1500 cases of gall stones treated by operation in a period of six years. Early diagnosis before complications have set in is of great importance since in the absence of complications the intervention is a very simple one. The surgeon should be no rival to surgery and internal medicine. The internist must understand that surgical treatment is only an auxiliary measure in the cure and is of value only when it is given at the right time and in cases that have not been neglected.

Kukor discusses the determination of the correct time for operation, the operative technique, and the results of operation.

Uncomplicated cases may be divided into the simple and catarrhal types. A simple case is one in which severe colics occur without fever. Between attacks the patient feels entirely well. Operation discloses a smooth gall bladder with stones but without adhesions. In cases with dull pains the gall bladder is sometimes thickened and membranous. In youth the operative mortality is very low. In advanced age operation is well tolerated if there have been no few attacks. With regard to the time at which operation should be done in acute and chronic gall stone disease, different surgeons express different opinions. The author has found the result in the two types of cases about the same. Cholecystography helps in making the decision as to operation.

In spite of our efficient methods of examination it is very difficult to distinguish between gall bladder stasis, papillitis, and duodenal ulcer. Gall stone disease is usually a consequence of disease of the bile producing system. Early operation will cure this vitally important system in a large percentage of cases. If fever is present, measures should be taken to reduce

the temperature before surgery is attempted but operation should not be delayed longer than from ten to fourteen days. In case of persistent icterus operation should be done as early as possible but in cases of intermittent icterus a thorough preoperative examination should be made. Operative treatment is contraindicated if the patient's condition is such that his life will certainly be placed in danger by surgical intervention as in the presence of heart disease, pulmonary disease, and fatty degeneration.

The author usually performs the operation under ether anesthesia alone but occasionally, when it is important to spare the heart, he combines the use of ether with local anesthesia. As a rule he uses the transrectal approach. He emphasizes that with incisions extending to the umbilicus the closure of the wound must be done with care to prevent hernia. In the majority of cases the gall bladder should be removed as it is diseased. Great care must be taken in hemostasis. It is very important to drain the gall bladder bed with gauze. In the author's cases the tampon is removed on the eighth day if possible. Cholecystectomy is not done in severe infectious diseases of the gall bladder or in the cases of patients with high fever and rigors or diabetes. Under such conditions a biliary fistula is preferred. From Couvoisier's incision is formed. The stones are removed particularly the ball valve stones. The escape of the bile is such a beneficial effect that the gall bladder may be removed a few months later. Closure of the fistula may be hastened by oil or glycerin injections.

Diseases of the upper biliary passages are associated with much more severe late symptoms and have a higher mortality. In such conditions, choledochotomy or transduodenal papillotomy with drainage of the common duct and the use of a T-tube is indicated. The permeability of the papilla is of great importance. If the papilla is not permeable it must be dilated with sounds. This is a matter that deserves more care than it has usually received in the past. If the papilla is not dilatable, choledochoduodenostomy must be done. For cases of injury to the liver, the author recommends treatment with insulin from 1000 to 1500 c.m.u. of a 5 per cent infusion of sugar with from 20 to 5 units of insulin. He does not employ the mucoclas recommended by Iribarn but has had no attacks in 100 cases.

Internists have reported complaints after operation on about 20 per cent of cases but closer examination of the evidence shows that for the most part the complaints can be attributed to other diseases and that the true secondary pain is so slight that they cannot be counted against the good result obtained by the operation, and most of them cease after mild Calabaz treatment. True recurrences are very rare; there is nothing one can do about them.

A relation between cancer and gall stones cannot be denied but is relatively very rare. In cases that

have not been neglected operability is approximately the same as in cases of gall stones

In conclusion the author says that so long as cholelithiasis does not produce symptoms it is not a disease but when it causes symptoms it should be treated by operation. The pathological changes cannot be judged from the clinical phenomena. At operation the gall bladder should be removed if possible and drainage should be established. A fistula should be made only in case of necessity. The best time to operate does not depend on the attacks. If the common duct is occluded it should be drained. The abdominal cavity should always be explored at operation. When gall stone operations are done at the correct time the mortality is about 4 per cent.

VON LOBMAVER (Z)

Amorosi O. The Changes in the Common Duct After Cholecystectomy Studied from the Histological Point of View (*Le modificazioni del coledoco dopo colecistectomia studiate dal punto di vista istologico*) *Arch ital di chir* 1930 xx 727

The author reviews briefly the literature on the changes in the common duct following cholecystectomy and reports the findings of a histological study of the common duct in dogs after periods of time up to five months following cholecystectomy.

Dilatation of the common duct is always noted after cholecystectomy. It reaches its maximum at the end of sixty days and then remains unchanged for ninety days. During this time the dilatation is a true one due probably to the stasis of bile which follows re-established continence of the sphincter of Oddi. After one hundred and twenty days it diminishes but there is a hypertrophy of the muscle fibers of the duct wall which is probably due to an increase in the functional stimuli and the absence of the gall bladder. After one hundred and fifty days the changes in the common duct remain stationary.

The author concludes that the dilatation in the early stages is purely mechanical whereas later there is a true hypertrophy of the wall of the duct.

PETER A. ROSE, M.D.

### MISCELLANEOUS

Just E. Subcutaneous Abdominal Injuries (*Ueber subcutane Bauchverletzungen*) *Arch f klin Chir* 1930 cxi 327

Since contusion injuries of the abdomen have been treated surgically there has been an increase in the incidence of recovery. According to Petersen the mortality ranged from 60 to 70 per cent in the period from 1885 to 1890, decreased to 30 per cent in the period from 1890 to 1900 and since then has remained at about 30 per cent. The decrease in the mortality has been due to improvement in the diagnosis and in recognition of the therapeutic indications especially the correct time for operative interference.

This article is based on seventy-nine cases of contusion injuries of the abdomen which were treated at the Innsbruck Clinic during the period from 1924 to 1929. Thirty-five were treated surgically and forty-one conservatively. Three of the patients were admitted to the clinic in a moribund condition.

In the systematic examination attention should be first directed to the history. This is important because the mechanism of the injury is frequently pathognomonic. Circumscribed trauma for instance may cause subcutaneous rupture of the small intestine whereas all injuries of the liver, spleen, pancreas and blood vessels are the result of a traumatizing force applied over a broad surface. If the patient when admitted is still in a state of abdominal shock no opinion can be formed immediately regarding the character of the deeper injuries. Shock is not a necessary accompaniment of every injury. Moreover it shows wide variations which may not be at all correlated with the severity of the trauma. Nor does the intensity of the shock allow deductions as to the character of the organic injuries. One of the difficulties in the diagnosis of shock is the exclusion of hemorrhage and beginning peritonitis. The symptoms associated with hemorrhage and with beginning peritonitis exhibit wide variations. In the differential diagnosis between shock, contusion, hemorrhage and peritonitis the patient's appearance is not of much help. On the other hand the quality and rate of the pulse are of special importance. Nausea and vomiting are early symptoms of visceral injury. The retention of feces and gas is variously interpreted. This sign is regarded as characteristic of injury of the stomach and intestines but its value is lessened by the fact that it seldom appears early. Moreover when it appears immediately following trauma it is often a manifestation of shock. The meteorism noted a few hours after trauma may also be regarded as a manifestation of shock when it diminishes but in some cases may be the precursor of peritonitis.

The diagnosis of subcutaneous injury of the abdomen consists essentially in the demonstration of foreign material either blood or intestinal contents in the abdominal cavity. The irritation of the peritoneum produced by foreign material is manifested by pain and abdominal rigidity. The demonstration of fluid in the abdominal cavity by percussion is significant but negative findings do not rule out injury since only amounts of 1 liter or more can be demonstrated by percussion.

Only very exceptionally is it possible to determine the particular organ which is involved. Effort must be directed toward ascertaining the presence of foreign contents in the abdominal cavity and its effect on the peritoneum. When foreign material is found operative interference is usually indicated. In spite of the most painstaking study there will always remain a number of cases in which a definite diagnosis is impossible but the syndrome is of a type which justifies operation. In such cases an exploratory laparotomy should be done. If con-

s r vative management is indicated the case should be watched until all symptoms have disappeared.

Of the thirty five surgically treated cases reviewed by the author single injuries were found in twenty five and multiple injuries in ten.

In the cases of single injuries the mortality was 16 per cent and in the case of multiple injuries it was 41 per cent. The total mortality was 22.8 per cent.

The author discusses injuries of individual organs. Injuries of the liver. Of the ten cases of liver involvement reviewed a single lesion was present in four and multiple lesions were found in three. Three deaths occurred in the first group and one death in the second. Two patients who were admitted to the clinic in a moribund condition died before operation could be performed. In all cases the capsule was lacerated. While no instance of subcapsular rupture of the liver was observed extensive central crushing of the liver parenchyma was found with tears of only slight extent. Operation consisted in suture with subsequent tamponade to take care of the bleeding.

Injuries of the spleen. According to extensive statistical studies the incidence of involvement of the spleen is about half that of involvement of the liver. Physiological splenic enlargements and to a greater degree pathological enlargements increase the danger to the spleen in cases of trauma. In five of the six cases of rupture of the spleen which are reviewed by the author the spleen was normal and in one case it was enlarged by malaria. In the latter there was only one lesion whereas in the five others there were more complicated ruptures. In the cases of complicated ruptures there were two deaths. In both of the fatal cases death was due to fat embolism from multiple fractures of bone. The diagnosis of splenic rupture is based on the signs of severe internal bleeding following trauma in the region of the spleen. In all of the cases reviewed there were multiple deep transverse tears. The operative treatment consisted of splenectomy in five cases and tamponade in one case.

Injuries of the kidney. Injuries of the kidney are more easily recognized than injuries of other organs because of hæmaturia associated with the former. Of the seventy nine cases of contusion of the abdomen reviewed by the author hæmaturia ranging from amounts which could be demonstrated only with the aid of the microscope to massive hæmorrhage occurred in twenty three. Seven cases with hæmaturia were treated surgically. There were no deaths in either the conservatively or the surgically treated cases. Operation was begun with exploratory exposure of the kidney. The condition then found determined the subsequent procedure.

Injuries to the large blood vessels. There were two cases of isolated laceration of a blood vessel (the mesenteric artery in one and the abdominal aorta in the other) and two cases of lacerations of blood vessels (the superior mesenteric artery in one and the renal artery in the other) resulting from other injuries. The diagnosis can never be made with cer-

tainty as the hæmorrhage is more apt to suggest bleeding from a parenchymatous organ than bleeding from a blood vessel. Of three cases coming to operation the vascular source of the bleeding was found during life in two and at autopsy in one.

Injuries of the pancreas. There were no isolated injuries of the pancreas in the cases reviewed. In the complicated pancreatic injuries the symptoms from injuries to the other organs were always predominant. Four cases of complicated injury to the pancreas were treated. In three the pancreatic injury was associated with injury of the spleen and in one with injury of the liver. The symptoms of the injury to the pancreas were in no case definite. The pancreatic lesions being as a rule discovered only on exploration of the abdominal cavity. When the laceration in the organ exhibited smooth edges the parenchyma and capsule were sutured and a drain was introduced into the suture line. In the presence of crushing and destruction of the tissues only tamponade and drainage could be considered. The operative mortality was 50 per cent.

Injuries of the gastrointestinal tract. Because of their frequency injuries of the gastrointestinal tract play an important role in subcutaneous injuries of the abdomen. Most frequent are injuries to the small intestine, the most frequent injuries of the large intestine and least frequent injuries of the stomach. Ruptures of the intestines usually cause shock of shorter or longer duration. Rigidity of the abdominal wall which at first is localized is always present and soon begins to spread. In the case of rupture of the small intestine which are reviewed there was only one death.

The prognosis in subcutaneous abdominal trauma depends upon the time that the injuries are diagnosed and treated. In cases of multiple ruptures early operation may prove life saving. During the operation a careful exploration of the abdominal cavity should be made not only in cases in which the diagnosis is doubtful but also in all others. In the seventy nine cases of contusion injury of the abdomen which were treated in a five year period in accordance with the principles mentioned the total mortality was 3.9 per cent and the operative mortality 22.8 per cent. ZILLEN R (Z)

Gustafson V and Antonelli A. Congenital Diaphragmatic Hernia in an Infant (Histological and Radiological Study). *Scandinavian Journal of Medicine* 1931; xxxv, 7.

Congenital diaphragmatic hernia is usually an autopsy finding or the revelation of a diagnostic error. The case reported in this article was that of a boy twenty months old who was admitted to the hospital with the diagnosis of bronchitis and pulmonary congestion with serofibrinous pleurisy on the right side. The condition had begun eight days previously with fever, a dry cough, dyspnoea and cyanosis.

Examination of the anterior aspect of the chest disclosed convexity of the sternal region with nar-

rowing at the base and a costal depression in the lower third of the right hemithorax. Examination of the posterior aspect showed asymmetry, convexity of the left hemithorax and diminished respiratory excursions of the base on the right side. Vocal fremitus was normal on the left side and slightly diminished on the right side. Resonance was diminished at the apex on the right side. In complete dullness was found in the region of the scapula and complete dullness at the base. The vesicular murmur was reduced and sounds without the distinct characteristics of rales and without relation to respiratory movements were noted. No definite diagnosis was established.

A double pleural puncture at the seventh and eighth intercostal spaces yielded a few drops of serous fluid. Cupping glasses and cataplasms were applied twice a day and adrenalin was given. Roentgenography seven days after the patient's admission to the hospital did not clear up the

diagnosis. Irregular shadows noted in the right hemithorax which were due to the contents of the herniated abdominal organs suggested the presence of hepatized zones in the lungs and pleural thickening.

Autopsy revealed a very small right lung and occupying the greater part of the right hemithorax the small intestine, cecum, appendix, ascending colon and the middle part of the transverse colon. The hiatus in the right diaphragm through which the intestine passed was of triangular form with its external base on the costal cage. Its apex easily admitted two fingers.

The authors emphasize the importance of keeping diaphragmatic hernia in mind in the diagnosis of chest conditions. In the case reported the history and the clinical and roentgenographic data while not pointing directly to the diagnosis would at least have aided it if the condition had been considered.

MARGUERITE P. SLOAN

servative management is indicated the case should be watched until all symptoms have disappeared.

Of the thirty-five surgically treated cases reviewed by the author, single injuries were found in twenty-five and multiple injuries in ten.

In the cases of single injuries the mortality was 26 per cent and in the case of multiple injuries it was 40 per cent. The total mortality was 22.8 per cent.

The author discusses injuries of individual organs.

**Injuries of the liver.** Of the ten cases of liver involvement reviewed, a single lesion was present in four and multiple lesions were found in three. Three deaths occurred in the first group and one death in the second. Two patients who were admitted to the clinic in a moribund condition died before operation could be performed. In all cases the capsule was lacerated. While no instance of subcapsular rupture of the liver was observed, extensive central crushing of the parenchyma was found with tears of only slight extent. Operation consisted in suture with subsequent tamponade to take care of the bleeding.

**Injuries of the spleen.** According to extensive statistical studies, the incidence of involvement of the spleen is about half that of involvement of the liver. Physiological splenic enlargements and to a greater degree pathological enlargements increase the danger to the spleen in cases of trauma. In five of the six cases of rupture of the spleen which are reviewed by the author, the spleen was normal and in one case it was enlarged by malaria. In the latter there was only one lesion, whereas in the five other cases there were complicated ruptures. In the cases of complicated ruptures there were two deaths. In both of the fatal cases death was due to fat embolism from multiple fractures of bone. The diagnosis of splenic rupture is based on the signs of severe internal bleeding following trauma in the region of the spleen. In all of the cases reviewed there were multiple deep transverse tears. The operative treatment consisted of splenectomy in five cases and tamponade in one case.

**Injuries of the kidney.** Injuries of the kidney are more easily recognized than injuries of other organs because of hematuria associated with the former. Of the seventy-nine cases of contusion of the abdomen reviewed by the author, hematuria ranging from amounts which could be demonstrated only in the sediment of the micturition to massive hemorrhage occurred in twenty-three. Seven cases with hematuria were treated surgically. There were no deaths in either the conservatively or the surgically treated cases. Operation was begun with exploratory exposure of the kidney. The conditions then found determined the subsequent procedure.

**Injuries to the large blood vessels.** There were two cases of isolated laceration of a blood vessel (the mesenteric artery in one and the abdominal aorta in the other) and two cases of lacerations of blood vessels (the superior mesenteric artery in one and the renal artery in the other) resulting from other injuries. The diagnosis can never be made with cer-

tainty as the hemorrhage is more apt to suggest bleeding from a parenchymatous organ than bleeding from a blood vessel. Of three cases coming to operation, the vascular source of the bleeding was found during life in two and at autopsy in one.

**Injuries of the pancreas.** There were no isolated injuries of the pancreas in the cases reviewed. In the complicated pancreatic injuries the symptoms from injuries to the other organs were always predominant. Four cases of complicated injury to the pancreas were treated. In three the pancreatic injury was associated with injury of the spleen and in one with injury of the liver. The symptoms of the injury to the pancreas were in no case definite; the pancreatic lesion being as a rule discovered only on exploration of the abdominal cavity. When the laceration in the organ exhibited smooth edges, the parenchyma and capsule were sutured and a drainage was introduced down to the suture line. In the presence of crushing and destruction of the tissues only tamponade and drainage could be considered. The operative mortality was 5 per cent.

**Injuries of the gastrointestinal tract.** Because of their frequency, injuries of the gastrointestinal tract play an important role in subcutaneous injuries of the abdomen. Most frequent are injuries to the small intestine, the most frequent injuries of the large intestine, and least frequent injuries of the stomach. Ruptures of the intestines usually cause shock of shorter or longer duration. Rigidity of the abdominal wall, which at first is localized, is always present and soon begins to spread. In eleven cases of rupture of the small intestine, which are reviewed, there was only one death.

The prognosis in subcutaneous abdominal trauma depends upon the time that the injuries are diagnosed and treated. In cases of multiple ruptures, early operation may prove life-saving. During the operation, a careful exploration of the abdominal cavity should be made not only in cases in which the diagnosis is doubtful but also in all others. In the seventy-nine cases of contusion injury of the abdomen, which were treated in a five-year period in accordance with the principles mentioned, the total mortality was 13.9 per cent and the operative mortality 22.8 per cent. ZILMER (2)

Giuftinon V. and Antonelli A. Congenital Diaphragmatic Hernia in an Infant (Illustration of a patient with congenital diaphragmatic hernia). *S. M. M. J.* 1933, 7.

Congenital diaphragmatic hernia is usually an autopsy finding or the revelation of a diagnostic error. The case reported in this article is that of a boy twenty months old who, as admitted to the hospital with the diagnosis of bronchitis and pulmonary congestion with serofibrinous pleurisy on the right side. The condition had begun eight days previously with fever and dry cough, dyspnea and weakness.

Examination of the anterior aspect of the chest disclosed convexity of the sternal region with nar-

infections of atrophic prolapsed uteri are uncommon and hence are not subjected to the cancerization influence of micro organisms. Lumiere suggested that trauma may mechanically destroy the tissues of the prolapsed cervix which ordinarily would undergo malignant degeneration. This divergence of opinion as to the probable cause of cancer immunity of the cervix in procidentia leads the author to urge a more careful study of the problem. He suggests that having once discovered the reason for the apparent cancer immunity, investigators might more easily discover the cause of cancer itself.

HAROLD C. MACK, M.D.

**Esguerra Gómez A. and Esguerra Gómez G.** Roentgen Control in Radium Therapy of the Uterus (El control radiográfico en la cuneterapia uterina). *Rev. méd. de Colombia* 1930 1 203.

There has been a great deal of variability in the results of radium treatment of the uterus for epitheliomata, fibromata, metritis and metrorrhagia. The authors attribute it to lack of uniformity in the application of the radium. When in the treatment of epitheliomata of the skin, the tubes were held in place by bandages, the results were satisfactory in only 18 per cent of the cases, but since the use of Columbia paste, which holds the tubes firmly in place, the treatment has been successful in 60 per cent of cases. Tubes inserted in the uterus may also slip out of place so that the irradiation is not applied as intended. To prevent this, repeated roentgen examinations should be made and the tubes restored to place if they have slipped. Anteroposterior and lateral roentgenograms should be taken. The authors believe that with such roentgen control, radium treatment of the uterus will be more uniform and much more favorable.

AUDREY GOSS MORGAN, M.D.

#### ADNEXAL AND PERIUTERINE CONDITIONS

**Migliavacca A.** The Antagonism of the Male and Female Sex Glands. Researches on the Ovary (L'antagonismo delle ghiandole sessuali maschili e femminili. Ricerche sull'ovaio). *Riv. ital. di g. n. c.* 1930 VI 475.

The author studied the histological changes in the ovaries of experimental animals following the injection of varying doses of testicular extract. He noted that small doses stimulated the development of the follicles, whereas large doses led to an increase in the cortical connective tissue and follicular changes. Relatively large doses caused atresia of the follicles and an increase in the tunica albuginea, which formed a wide compact stratum of cortical connective tissue. The author believes that this increase in the tunica albuginea may prevent extrusion of the mature ovum, thereby explaining the temporary sterility which follows the injection of testicular extract.

With regard to the use of testicular extract in gynecology, the author suggests that the stimulating effect of small doses of the extract might be of value

in infantilism, hypoplasia and amenorrhœa, and the depressant effect of larger doses of value in ovarian dysfunction, especially that associated with excessive menstruation.

PETER A. ROSI, M.D.

**Introzzi A. S.** A New Surgical Procedure for the Treatment of Sclerocystic Ovaritis. Its Basis, Technique and Results (Nuevo procedimiento quirúrgico para el tratamiento de la ovaritis esclerocística: sus fundamentos, técnica y resultados obtenidos, conclusiones derivadas del mismo). *Bol. Inst. de Clin. Quir.* 1930 VI 277.

Introzzi finds that no adequate treatment has yet been suggested for sclerocystic ovaritis, although this condition is a well defined clinical entity. The procedure described in this article, which is based on a study of the ovarian arteries, veins and nerves, was suggested by recent progress in the surgery of the sympathetic nervous system.

Sclerocystic ovaritis has been ascribed to infection, neuropathic conditions, congestion and disturbances of the sympathetic nervous system, but none of these theories is sufficient alone to explain its pathogenesis. In Introzzi's opinion, the theory ascribing it to disturbances of the sympathetic nervous system is the most acceptable, as it explains the attacks of pain, the constant reflex symptoms and the menstrual disturbances. Moreover, it has been supported by a series of anatomical and anatomopathological investigations and unlike the other theories, has been confirmed by therapeutic results.

As in every condition not entirely understood, the treatments employed in sclerocystic ovaritis have been very numerous. The non-surgical procedures include the administration of sedatives and antispasmodics, hygienic measures, opotherapy and specific treatment, heliotherapy and irradiation with ultraviolet and infrared rays. The results of all of these methods have been variable. The surgical procedures may be divided into three main types: those directed to the ovary, such as ignipuncture and partial resection; those directed simultaneously to the ovary and uterus; and those directed to the sympathetic system. While sympathectomy—particularly Cotte's method, resection of the presacral plexus—has been done rather extensively, Introzzi emphasizes that the ovary is innervated by the spermatic plexus and as there is no anastomosis between this plexus and the plexus which follows the uterine blood vessels, it is impossible to produce an effect on the ovarian nerves by sectioning the presacral plexus.

Introzzi's operation, which has been performed in five cases, consists in resection of the utero-ovarian vasculonervous fasciculus. A low Pfannenstiel laparotomy is done and the internal genitalia are carefully explored. If the diagnosis is confirmed and there is no concomitant affection which might explain the pain, the ilio-ovarian ligament is held taut and an incision about 4 cm. long is made with the bistoury in the peritoneum at the level of the

free edge of this ligament. The serosa is then separated from the anterior and posterior sides of the ligament to its base with a blunt instrument. All of the elements of the vasculonervous fasciculus are resected to an extent of 2 cm. their ends are ligated and with the same blunt instrument the small amount of fatty tissue which may remain at the base of the ligament is divided. The absence of hemorrhage having been confirmed (if the operation is performed properly no vascular injury will occur) the peritoneal wound is closed. The ligament on the other side is treated in the same way. After prophylactic appendectomy the abdominal wall is closed in layers.

The five cases in which this operation has been performed were uncomplicated by genital infection. After the second postoperative menstrual period there was complete cessation of the pain and other disturbances.

Introzzi finds anatomical physiopathological anatomopathological and therapeutic bases for his operation. From its results he draws the following conclusions:

The only cause of the clinical syndrome of sclerocystic ovaritis is unquestionably the ovarian lesion.

1. The ovary acts on the rest of the genital system through the agency of the nervous system, the afferent or centripetal ramification of which can be no other than the utero-ovarian plexus. The distant functional and pain reflexes are explained by anatomical relationships between the spermatic plexus and the renal and intermesenteric plexuses and between these and the lumbar and hypogastric plexuses.

2. The irritative foci in the ovary are probably lesions in the region of the ovarian nerve bundles.

3. The menses occur at several hours duration which occurred about forty-eight hours after the operation in all of the five cases reviewed, as due to an intense vasodilatation in the uterine mucosa which is dependent upon the close relationship between the ovarian nerve elements and the vasomotor system of the uterine mucosa.

4. Ovarian function is not altered in the slightest as a result of the enervation; on the contrary its rhythms are lost.

5. When the diagnosis has been established, operation should be performed as soon as possible.

MARGUERITE I. S. OAK

Meyer R. The Variety of Ovarian Tumor That Leads to Masculinization (Ueber die Art der Ovarialtumoren, die zu einer masculinization führen). Zbl. f. Gyn. 1930, 37, 49.

The assumption that masculinization is caused by ovarian tumors is confirmed when resection occurs after extirpation of the tumor, even if recurrence develops. Disagreeing with Halban's theory, the author claims that these tumors belong to a special variety and that recognition of their peculiarity becomes difficult only after retrogression

changes have set in. He divides them into three groups: adenoma tubulare testicularis ovarii, atypical forms, and transitional forms.

1. Adenoma tubulare testicularis ovarii. Of the cases of the morphologically simplest forms reported by Pick, Schickele and Neumann, masculinization occurred in only one, that reported by Neumann, in which the tumor showed an astonishing richness of transitional cells and resembled an adenoma of the testis. To the same group belong cases of adenoma tubulare partim the carcinomatous ovarii of Meyer, Neumann, Liebschütz and Popoff, which show neither congenital hermaphroditism nor later masculinization. Two new cases are added to the group: those of Blair Bell and Berner, which showed distinct masculinization. Masculinization has therefore occurred in about one-third of the cases of this group.

2. Atypical forms of tumors. As neoplasms in this group are frequently reported as sarcomata, it is impossible to collect them from the literature. It is certain, however, that those reported by Moos, Stuebler, Brandess and Halban, are of this type. Others have been described by Strassmann, Wagner, Kleinhaus, Kraus and Geiler. All showed a striking tendency toward retrogression (hemorrhages in the tissues, softening, liquefaction, cavity formation, parts resembling cystoma, epithelial cysts). Diffuse cell proliferation causes them to resemble sarcomata. The tubules irregularly provided with varying lumina are often recognized with difficulty. All cases show masculinization.

3. Transitional forms. The author cites intermediate cases of tubular and atypical tumors reported by Meyer, Bauer, Hoeft and Morrell, which showed varying degrees of sexual transformation.

Although the case of Pick, Schickele, Blair Bell and Neumann are to be regarded as cases of congenital ovario-testicular interence, has demonstrated that masculinization in later life from the influence of ovarian tumors on internal secretion is least frequent in cases of the tubular forms of tumor, which most closely resemble normal testicular tissue and most frequent in cases of tumors which deviate farthest from this tissue and show definitely immature cells. Between the extremes there are intermediate cases. We are at first surprised by what experience has shown us. Nevertheless masculinization is absent in testicular hermaphrodites. The author calls attention to the inferiority of these gonads. In cases with masculinization, however, it is not immediately clear whether the persons were zygotically hermaphroditic or whether previously and sterile sex gland epithelium later veered in the male direction.

In the second part of the article the author discusses the different kinds of blastomata of the sex gland epithelium in the ovaries and their function—lutein cell tumors, granulosa cell tumors, large cell carcinomata of the ovary and testicle, tumors of the normally unutilized epithelium of the ovary and tumors of the medullary epithelium and rete ovarii.

1 Lutein cell tumors The cases of lutein cell tumors which have been reported in the literature to date have not been verified

2 Granulosa cell tumors (folliculoma folliculoid form of granulosa cell tumors) The endocrine function of this variety of tumor is specifically feminine (hypertrophy of the uterus glandular hyperplasia of the endometrium) These tumors are an important factor in the early maturity of children

3 Large cell carcinoma of both kinds of sex gland ovary and testis—the so called seminoma or true germinoma These tumors are found in true hermaphrodites pseudohermaphrodites non hermaphroditic males and non hermaphroditic females They are discovered especially often in young persons They originate in the neutral germinal epithelium in which in embryonic life the capacity for differentiation was decreased but the capacity for proliferation was increased Such germinal epithelium is neither male nor female nor hermaphroditic but inferior disgerminal The tumors may be called disgerminomata

4 Tumors of the normally unutilized epithelium of the ovary superficial epithelium These neoplasms include the cystoma cylindro cellulare serosum (cilio epitheliale) the cystoma serosum the cystoma papillomatousum in a histologically benign and destructive form and the solid carcinoma with and without cysts and papillae

The question arises whether women who have tumors that lead to masculinization are of an intermediate sex There is a very evident difference between congenital hermaphroditism found usually in individuals possessing testes (80 per cent of the cases) and postfetal sex reversal in persons who apparently possess only ovaries (20 per cent of ovarian hermaphrodites) The question is Are these (obligate or facultative) sex gland hermaphrodites zygotically male or female? As yet this question cannot be answered

HANS O NEUMANN (G)

## MISCELLANEOUS

Gauss C J The Clinical Picture of Temporary Roentgen Amenorrhœa (Die Klinik der temporären Roentgenamenorrhœa) *Strahlentherapie* 6 1930 XXXVII 511

Gauss prefers the term temporary roentgen menolysis to the term temporary roentgen castration

Following a discussion of the historical development of temporary roentgen menolysis the author takes up the question of dosage Instead of giving a series of small doses until the desired result is secured he has adopted the practice of giving the determined amount at one sitting The dose for the one dose treatment is given by different roentgenologists at from 25 to 30 per cent of the skin erythema dose Gauss prefers a technique adapted to the individual case He usually measures the

dosage by means of an iontoquantimeter introduced into the vagina and administers it through one or two large fields He recommends the Kadisch dosage tables as a control

With regard to the course and clinical picture of temporary roentgen amenorrhœa Gauss says that two or three menstrual periods follow the irradiation The duration of the amenorrhœa provoked has varied from four weeks to three and one half years Women under thirty five years of age require higher dosages for the desired effect than older women and an enduring amenorrhœa is secured more quickly with the same dosage in older women than in younger women Vasomotor disturbances occur in about 87 per cent of the cases Reports regarding the effect of the treatment on sex feeling are at variance Trophic disturbances in the genital organs have not been observed The use of temporary roentgen menolysis for contraception is not permissible The procedure is of value chiefly in general diseases which would be made worse by menstruation (pulmonary tuberculosis menstrual psychosis hæmophilia) Good results have been obtained with it also in juvenile menorrhagia In premenstrual bleeding it has not been so satisfactory as it frequently results in permanent amenorrhœa

In cases of myoma in the young it results in a cure in 91 per cent (Wintz) A new application is in endometriosis When the condition is not a simple tarry cyst temporary roentgen menolysis may be tried The chief condition in which it may be employed is inflammation of the adnexa with or without hæmorrhage Besides stopping the hæmorrhage it exerts a specific effect on the inflammatory mass which is manifested by quick relief of the pain and a decrease in the size of the mass The only contra indication is possible injury to subsequent progeny It is not to be used to produce sterility

In women under thirty five years of age the incidence of unintentionally induced permanent amenorrhœa is about 4 per cent in older women it is higher Following the period of temporary amenorrhœa sterility and a tendency toward abortion are noted in a high percentage of cases but the data are not sufficiently extensive to indicate whether the roentgen treatment or the illness treated is responsible

While injury to an embryo can be prevented by proving the absence of pregnancy before the treatment is undertaken (Aschheim Zondek test curettage) the problem of possible injury to the ovum is not so easily solved In a review of the entire medical literature of the world only one proved instance of injury to an ovum which was fertilized early and only a few cases of injury of ova fertilized late were found The frequency of malformations is no greater than in unirradiated women However an early injury is possible Therefore pregnancy should be prevented during the first five months after the application of the treatment or if



it occurs it should be interrupted Late injuries have not been satisfactorily proved in the human being but are not impossible Therefore the treatment should be used only in the cases of women who are sterile and will remain so (adnec al inflammation large myomata endometriosis) and women for whom operation is contra indicated SCHOENIG (G)

F nucc V A C s of Derm id Cyst Free in the Pouch of Dougl s (S d o d t d moid l b a l D gl ) t tal d h 93 ix 1 86

A woman forty five years of age entered the hospital on account of attacks of acute abdominal pain Examination disclosed a cystic tumor filling the pouch of Douglas A diagnosis of cyst of the ovary with a long pedicle was made At operation the tumor was found to be about the size and shape of a goose egg It had no connection with the ovary and even in microscopic examination showed no trace of a pedicle It was filled with long blond hair and contained a tooth and a piece of compact bone about the size of a pea

This was a dermoid cyst of the ovary lying free in the pouch of Douglas It probably originated from the right ovary as the latter showed small cysts whereas the left ovary was normal The cyst was loosely adherent to the peritoneum While it might have had a pedicle connecting it with the ovary originally the author believes it was separated from the ovary by auto amputation since there were no

signs of a pedicle and there had been no clinical signs of torsion or rupture of a pedicle

The patient made an uneventful recovery

AUDREY GOSS MORGAN M D

Meaker S R A Survey of C usati e Factors in Sterility *Am J Ob t & Gy c* 930 xx 749

Modern research has shown that sterility is usually due to the combined influence of multiple factors which depresses fertility below the threshold of conception

About one third of all demonstrable causative factors are congenital conditions of constitutional depression which lower the inherent fertility of the gametes In nearly 90 per cent of sterile matings such conditions are operative in one or both partners In the male they are usually more important than abnormal local conditions

About one third of all demonstrable causative factors are present in the male and two thirds in the female but in more than 90 per cent of clinical cases there is some division of responsibility between the male and female

A radical revision of older ideas of the causation of sterility requires the establishment of new standards for the complete diagnostic study of the sterile mating Thorough investigation points the way to adequate treatment In the author's cases modern treatment has given successful results in more than twice as many cases as previous methods

E L CORNELL M D

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Meyer S. Extra Uterine Pregnancy Near Term and Infected (*Grossesse extra utérine près du terme et infectée*) *Rev franc de gynéc et d obst* 1930 xxv 739

A nullipara thirty six years of age had had normal menstruation until April 1929. In the period from April to September bleeding occurred frequently. In January there was a small daily hæmorrhage of bright blood without clots. In the beginning of April 1930 the bleeding continued for four days and resembled normal menstruation. Between April and September vomiting occurred frequently and there was intermittent swelling of the breasts. In April 1930 colostrum was secreted. After September 1929 the abdomen increased in size. The patient had noted fetal movements in November and December 1929 but not since then. On April 7 1930 she began to have a continuous but not very intense pain in the kidneys which radiated to the buttocks and the posterior surface of the thighs. On May 5 when all of the examinations had been completed the author concluded that the patient was in about the eighth or ninth month of pregnancy that the fetus was dead and its death had probably occurred in December 1929 when the patient had nephritis that the pregnancy might be intra uterine or extra uterine and that the febrile condition was due to infection of the fetus only. Although renal elimination was very deficient and there was a severe uræmia operation was indicated by the menace of the infection of the fetus.

Operation by the vaginal route was rejected because the cervix was far forward behind the symphysis and the posterior cul de sac was enormously inflated. On May 8 after forty eight hours preparation an incision was made on the left side below the umbilicus. When the peritoneum was opened the bladder was seen to be high and toward the right. In front of the tumor the peritoneum was walled off by loose adhesions but on the lower half of the posterior surface of the tumor the adhesions were very firm. The peritoneum being protected the tumor was opened. A fetus between eight and nine months old was extracted. It was in a state of anaerobic infection. The pocket which contained it was partially exteriorized and found not to be the uterus. The uterus somewhat enlarged was on the right toward the front. The right adnexa had been removed at an earlier operation. The pocket descended very low in the lesser pelvis and adhered to the sigmoid. Hysterectomy was done but enucleation of the pocket was impossible.

The first ten days after the operation passed without incident. The first Mikulicz drain was re-

moved on the eighth day. On about the tenth day the faeces filtered through the wound. The wall had given way. On the twentieth day the patient began to take nourishment and on the seventy eighth day she left the hospital with a small fistula in the wound and a rectovaginal fistula.

Macroscopically the wall of the fetal pouch seemed to be composed of preformed tissue. Histological examination showed that it contained more or less dissociated muscular tissue very vascular connective tissue extensive infiltrations and necroses and numerous calcareous deposits. The condition was probably an ampullar tubal pregnancy or a tubo abdominal pregnancy. The fetal infection must have been of long standing. The patient had had fever for three weeks at least. The maceration of the fetus and placenta was advanced. The cord completely necrotic tore at the least touch. The pus contained Gram positive cocci in chains and Gram negative bacilli. In cultures the latter were identified as colon bacilli. The author believes that the infection reached the fetus from the intestines by way of adhesions or the lymphatics.

PAGE

Collip J B Thomson D L McPhail M K and Williamson J E. The Anterior Pituitary Like Hormone of the Human Placenta. *Canadian Ass J* 1931 xxiv 201

The authors describe methods of preparing extracts of human placenta containing an alcohol insoluble principle and compare the effects of such extracts on the growth and weight of the ovary, testis, seminal vesicle, prostate and epididymis of immature and adult rats with the effects obtained by the implantation of pituitary glands.

MAGNUS P. URNES M D

Riviere M. A Comparative Microscopic Study of So Called Albuminuric Syphilitic and Normal Placentæ (Contribution à l'étude microscopique comparée des placentas dits albuminuriques et syphilitiques et des placentas normaux) *Gynéc et obst* 1930 xxi 481

Comparative studies of placenta of women with syphilis and those with toxæmia of pregnancy associated with albuminuria have shown a striking similarity in the microscopic structure of both groups. Pathological changes involving the syncytial elements of the placental villi, the vascular system and the amnion have been described as characteristic of both conditions. This similarity has led to the statement that albuminuria during pregnancy is often a manifestation of maternal syphilis.

In the study reported in this article Riviere compared a series of sixteen placenta of women with

albuminuria three placenta of women with chronic nephritis twelve placenta of luetic women and nine placenta from women who had had a normal pregnancy. Excessive proliferations of the ectoderm vascular ectasias obliterating endarteritis necrosis of the villi and decidual hemorrhages were present in every series to at least an equal degree and in some instances were more pronounced in placenta which were supposedly normal. Riviere therefore concludes that these so called pathological changes are merely signs of senescence of the placenta. He believes that there are no absolutely specific changes which enable the pathologist to make an accurate differential diagnosis. In the placenta of women with albuminuria he has found no evidence to support the theory that the fetal ectoderm is responsible for the symptoms of toxic states associated with pregnancy.

HAROLD C. MACK, M.D.

Nu nberge I. Studi on the Inte mediate Fat Metabol m in the F tus (U te h eber d te m d. I t t i f echs i d Fet ) A h f Gy k 93 d 93

The author's studies demonstrate definitely that the fat of the primitive organs is formed from glycogen and consequently from carbohydrates. This knowledge is important from several standpoints. In the first place it brings us nearer to an understanding of the chemical processes involved in the storing up of fat by the fetus. We now know that the fatty deposits in embryonic life are formed from glycogen (carbohydrates). This having been established the fat metabolism of the placenta appears in a new light. Since the studies of Hofbauer (1905) it has been assumed that the fetus receives its fat from the mother, the placenta serving as the medium of transport. This theory must now be modified. While it can scarcely be doubted that fat or its split products pass through the placenta to the fetus, this fat is not deposited in the fetus but is probably used in other ways. The fetus builds up its own fat deposits from carbohydrate (glycogen).

The author's findings offer further proof that fats may be elaborated from carbohydrates. The possibility of the formation of fats from carbohydrates is today universally admitted but previously this was merely assumed from the findings of feeding metabolic or chemical studies on animals. In man the formation of fats from carbohydrates was demonstrated only by estimations of the respiratory quotient by B. Umgardt and Steuber. Up to the present time the morphological demonstration of fat formation from carbohydrates in man has been lacking. Von Gerke reported that he had never been able to demonstrate the presence of glycogen in the fatty tissues of man and Nuernberger has been unable definitely to demonstrate the presence of glycogen in bits of fatty tissue removed at operation. Therefore it still remains to be determined whether the intermediate fat metabolism in the adult differs from that in the fetus.

HANS O. NEUMANN (G)

Caffier P. The Treatment of Hyperemesis with Sugar and Insulin. Empirical Experience and Theory (Empirische und Theoretische Hyperemesisbehandlung mit Zucker und Insulin). Z. Geburtsh. Gyn. k. 93: 3 p. 723.

Systematic combined insulin dextrose therapy was given in twenty cases of hyperemesis gravidarum. Interruption of the pregnancy was necessary in only one case and in this instance was indicated not by the hyperemesis but by Landry's paralysis.

After the first vomiting the taking of nourishment of any sort by mouth or by rectum was stopped. On the following day after a cleansing enema a drip of dextrose of from 30 to 50 gm. of dextrose in from 300 to 500 ccm. of water was given and about fifteen minutes later from 10 to 15 units of insulin were injected. Feeding by mouth was not recommended until one day after complete cessation of the vomiting. It was then begun cautiously with fluids and solid food was added gradually.

In six cases this treatment was completely successful the vomiting ceased and the patients felt well. Good results were obtained also in two other cases but the patients left the clinic within the first eight days before the conclusion of an adequate period of careful clinical observation. In two other cases a similar reaction was obtained but in one of them spontaneous abortion resulted fourteen days after the patient's admission to the clinic and in the other hypoglycemic shock occurred. In five cases an immediate cure was followed later by recurrence but the recurrence yielded to repetition of the treatment. In one case criminal abortion was done and in another spontaneous abortion occurred.

In five cases the treatment failed. In two of these hypoglycemic shock appeared in 2 there was an accompanying icterus and in one abortion resulted. In four of the five cases a cure was obtained by dietetic and psychic treatment and in one by abortion. The fact that hypoglycemic shock occurred twice and hypoglycemic conditions 3 times indicates that the combined dextrose insulin therapy should be carried out only in the clinic.

Following a discussion of the theory of this treatment the author concludes that not only the glycogen firing action of the insulin but also stimulation of the hunger sensation plays an important rôle. He suggests that it might be advisable to replace the dextrose with levulose which the body can utilize more easily.

HARTMANN (G)

Smith C. T. and Kinla W. B. Clinical Consideration of an Anemia of Pregnancy and the Puerperium. A. J. M. d. 193 v. 939.

Anemia of pregnancy and the puerperium has been established as a definite entity. To merit this classification all other causes of anemia except pregnancy such as hemorrhage, sepsis, syphilis, primary pernicious anemia and leukemia must be excluded. The onset is insidious in the latter weeks

of pregnancy and is characterized by weakness dyspnea headache palpitation dizziness oedema of the feet and occasionally an associated toxæmia of pregnancy. The relationship of the condition to pernicious anemia is close but no recurrence independent of pregnancy has been reported. The symptoms may resemble those of the toxæmia of pregnancy.

The possibility of puerperal anemia must be kept in mind in the cases of women with fever albuminuria and toxæmia after pregnancy. When this type of anemia is present these symptoms promptly respond to treatment of the anemia. No clinical evidence of syphilis was found in any of the twenty-two cases reviewed.

The treatment depends upon the indications in the individual case. Blood transfusion is advisable if the anemia is severe and the patient is very ill and liver extract with hydrochloric acid if achlorhydria is present. Large doses of iron may also be given. The response is very satisfactory. Recurrence will not develop unless the patient becomes pregnant again and possibly not then.

MAGNUS P. URNES M.D.

Stieglitz E. J. Nephritis in Pregnancy. *Am J Obst & Gynec* 1931 xii 26

Stieglitz reports fifty-five cases of nephritis in pregnancy which he divides into the following three groups:

Group 1. The nephritis of pregnancy or the syndrome of renal fatigue in pregnancy which is characterized by a rather abrupt onset at about the eighth month a mild course a good prognosis and a moderate arterial hypertension (average 153/97). Forty per cent of the author's cases were in this group.

Group 2. Eclamptic or pre-eclamptic intoxication characterized by an abrupt explosive onset after about seven and a half months profound intoxication of the liver and brain a higher arterial hypertension (average 185/115) and an unfavorable immediate prognosis but a fairly good future prognosis. About 22 per cent of the author's cases were in this group.

Group 3. Nephritis in pregnancy with pre-existing vascular and/or renal disease characterized by a very early onset of symptoms (after about five and three quarter months) severe diastolic hypertension (average 194/148) and a fairly good immediate prognosis but a very poor future prognosis. Forty per cent of the author's cases belonged in this group.

The fetal mortality was highest (60 per cent) in the cases in Group 3.

Pregnancy induces a permanent exacerbation of pre-existing arteriolar and renal lesions.

A fourth group of cases of nephritis associated with pregnancy is made up of those with other complications such as cardiac disease thyrotoxicosis and infection.

The author emphasizes the importance of careful evaluation of the renal reserve the significance of

diastolic hypertonia the proper classification of the types of nephritis and the management of oedema albuminuria anemia and hypertension. Effective therapy depends upon recognition of the type of the renal disease consideration of the causative factors of the renal injury and the basic physiological changes occurring in the patient and measures for rehabilitation.

E. L. CORNELL M.D.

## LABOR AND ITS COMPLICATIONS

Rudolph L. and Ivy A. C. The Co-Ordination of the Uterus in Labor. *Am J Obst & Gynec* 1931 xii 65

The authors report two cases of asymmetrical contraction of the uterus in labor. These cases raised the question of the mechanism concerned. A review of the embryology comparative anatomy and physiology of the uterus shows that this organ has a bilateral origin and that the two halves except where fused act more or less independently. On fusion a correlating mechanism becomes manifest.

In a study of a type of co-ordinated activity manifested by the parturient uterus of the dog the authors found an intrinsic and an extrinsic mechanism the former in the uterine wall and the latter in the uterovaginal ganglia. The former is the more important. The dog's uterine motor mechanism *in situ* manifests the phenomena of refractory period and summation.

The irregularity in the uterine motility obliquity of the uterus in the two clinical cases reported and other types of abnormal motor activity are explained on the basis of a functionally defective co-ordinating mechanism.

In the discussion of this report STEIN stated that he has verified asynchronous contraction of the tubes in the cornua of the human uterus with lipiodol.

FALLS said that the human uterus is fundamentally a bicornate uterus and that clinical evidence of bicornuosity in the human uterus is found much more frequently than the textbooks on obstetrics suggest.

DAVIS stated that irregular contractions of the uterus are frequently mistaken for fibroids.

E. L. CORNELL M.D.

Kapel O. Clinical Experience with Obstetrical Anesthesia Induced by the Administration of a Barbiturate Derivative in Conjunction with Synthetic Pantopon. (*Expériences cliniques sur l'anesthésie obstétricale par un dérivé barbiturique associé au pantopon synthétique*). *Gyéc et obst* 1930 xxii 503

Kapel reviews 300 obstetrical cases in which nupal (a barbiturate compound) and nirvapon (synthetic pantopon) were administered intravenously for the induction of anesthesia. The results although far from ideal were very satisfactory in the great majority and far surpassed those of other intravenous methods. The solution contained 0.2 cgm of nupal and 1.6 mgm of pantopon per cubic

centimeter. The dosage used was 4 to 5 c cm of this solution the amount injected being determined by the effect obtained. The injection was made very slowly requiring at least 10 minutes and was discontinued as soon as the patient became unconscious stated that she felt no pain and fell into a light sleep. The patients varied in their susceptibility to the drugs. The majority fell asleep after the injection of 4 c cm but in the cases of 16 an additional injection of from 1 to 2 c cm was made because sleep failed to occur within from five to ten minutes after the initial injection and in the cases of 1 the effect of the drugs had worn off before delivery a second injection of 2 c cm therefore being necessary.

Excellent results were obtained in 86 per cent of the cases the patients experiencing no pain but retaining varying degrees of consciousness. In 7 per cent the patient became violently agitated after the injection but experienced no pain. In another 7 per cent the results were poor.

In the cases of primiparae the best results were obtained when the cervix was dilated 7 cm or the greater diameters of the fetal head had entered the pelvis. In the cases of multiparae the optimal time was when the cervix had dilated 5 cm. In the presence of normal uterine contractions a transitory cessation of contraction was occasionally noted and when the injection was made during uterine inertia the inertia was prolonged. In the cases of elderly primiparae and multiparae uterine contractions ceased immediately after the injection. This effect was noted also in cases with elevated temperatures. In 28 cases in which labor was definitely prolonged an increased tendency toward postpartum hemorrhage was apparent.

While the effect upon the mother was harmless in every instance a transient cyanosis as observed in the majority of infants and in 2 instances of severe cyanosis the results were fatal. The mothers of both of the infants who died of a cyanosis and those of others with severe cyanosis had albuminuria. The presence of albuminuria in the mother constitutes a definite contraindication to the use of the drugs as maternal toxemia leads to a high frequency of fetal asphyxia regardless of the type of anesthetic used. Humal and nirvapone exercise a depressing effect upon the fetal respiratory center and therefore increase the risk to the fetus in the presence of toxemia.

While the author considers the results gratifying on the whole he advises against the use of the method in private practice because of the danger to the fetus. However in its prolonged action and the complete anesthesia obtained it is superior to other similar methods.

Fapel concludes his report by emphasizing that the procedure is contraindicated in the cases of primiparae over thirty years of age primary uterine inertia elevation of the temperature abnormal presentations of the fetus and maternal nephritis.

HAROLD C. WACK, M.D.

Clemente D. Complete Spontaneous Rupture of the Uterus in Labor Vesico Uterine Fistula Recovery (Ritorno completa spo. ta co d. tero n. tr. v. bo. fit. la. v. sei. o. uteri. a. guar. o. e). *Pol. d. n. Rome* 1931 xx 11 s. 2. p. 113.

The case reported was that of a multipara thirty-seven years of age. Spontaneous complete rupture of the uterus during labor was caused by a shoulder presentation. Seven hours after the rupture subtotal hysterectomy was done. The operation was followed by necrosis with the formation of a vesico-uterine fistula. Operation was performed on the fistula by the vaginal route a month later. It consisted of bilateral section of the cervix freshening and suture of the endocervical fistulous orifice, resection of the mucosa and the muscular tissue of the lips of the cervix and closure with catgut. The resulting adhesions however were only partial. At a second operation the tissues of the fornix were freshened and sutured with catgut. Complete recovery resulted. WILLIAM W. WHITLOCK, F.R.C.S.

Audebert J. L. Procidence of Limbs (La procidence des membres). *Rev. f. on. d. gy. et. d. obst.* 1930 xx 7 4.

The term procidence signifies the descent before the presentation of a fetal part not belonging to the presentation. In the presentation of the shoulder the descent of the arm is a prolapse not a procidence. Procidence of the foot is very rare whereas procidence of the upper limb is more frequent. According to Winkler procidence occurs only once in 500 vertex presentations and 6 times in 100 face presentations. The diagnosis may be made by palpation. The author reports a case of procidence of an arm complicated by contracted pelvis and hydramnios. Under these conditions the upper passage was not completely obstructed by the presentation and procidence was favored by premature rupture of the membranes and the discharge of the excessive amount of amniotic fluid. Other factors favoring procidence are faulty presentations, small size of the fetus in pregnancy and nonaccommodation. Engagement depends on the degree and the site of the procidence, the size of the child and the procidence of the cord. If engagement occurs in spite of procidence the head may be blocked the presence of the limb preventing rotation.

Labor complicated by procidence is often painful and slow. If the diagnosis is made early and the proper measures are taken the maternal prognosis is not unfavorable. In procidence of the cord the prognosis for the fetus depends on the speed with which operation relieves asphyxia. The protruding limb may be traumatized, epiphyseal separations may occur and plaques of gangrene may develop on the head. The fetal mortality from all of the causes amounts to 20 per cent.

If the procidence occurs at the beginning of labor and the amniotic sac is not broken the woman should be placed in the Trendelenburg position. In many cases spontaneous reduction will then occur.

When the amniotic sac has broken the limb must be put up above the corresponding parietal prominence. The author has devised a maneuver by which this may be accomplished either externally or internally. The elbow is sought to discover the direction in which it bends pressure is then made and the forearm is drawn up.

In other cases as in the case reported the conditions permit immediate termination of the labor by version. In the application of forceps care must be taken not to seize the limb with the instrument. In some cases basiotripsy is necessary. Pubiotomy should not be attempted. Sometimes cesarean section is indicated. A tape should be placed on the pericent hand.

PAGE

Edgecombe K. Dystocia Due to Idiopathic Dilatation of the Fetal Urinary Tract. *J Obst & Gynec Brit Emp* 1930 xxviii 832

In the case reported that of a woman thirty six years of age the head of the child was easily extracted with the forceps but its body could not be delivered even with strong traction. A diagnosis of fetal ascites was made and the child extracted after perforation of its abdomen through the thorax. The mother recovered.

At autopsy on the child partial persistence of the primitive cloaca and an imperforate anus were found. The whole urinary system was dissected out and removed intact. The bladder was enormously dilated and the walls considerably thickened. It formed a tumor measuring 6 1/2 in from side to side 4 in from above downward and 2 1/2 in from before backward. It was divided roughly into three main parallel cavities and one accessory cavity. The central cavity represented the original organ while the two lateral sacculations carried the orifices of the ureters. The ureters were considerably dilated and tortuous. At the widest part their diameter was 0.07 in. The kidneys showed a considerable degree of hydronephrosis. The urethra presented no structure or congenital abnormality but there was marked phimosis with swelling of the lips of the urethra.

The author states that the only possible cause of obstruction in the urinary tract was the phimosis and it is doubtful whether that was sufficient to produce the degree of dilatation which had occurred. He therefore attributes the condition to a defect in the musculature or the innervation.

GOODRICH C. SCHAUFFLER M.D.

Ferro Diaz L. M. Segmental Transperitoneal Cesarean Section (La operación cesárea trans peritoneal segmentaria). *Repert de m d y cirugía* 1930 vii 515

In the segmental transperitoneal cesarean operation the incision is made in the lower segment of the uterus after the visceral and parietal peritoneum have been sectioned transversely and sutured together so that the peritoneal cavity is closed off. After extraction of the fetus the wound in the uterus

is sutured and then peritonized by bringing the artificial cul de sac down as far as possible over it. The steps of the operation are well shown in illustrations.

The operation is indicated in absolute and relative contracted pelvis forehead or shoulder presentation and eclampsia. In fact the author regards it as preferable to the classical operation in all cases in which cesarean section is necessary. As the peritoneal cavity is closed off there is less danger of infection. If infection takes place it causes only a pelvic peritonitis and not an inflammation of the entire peritoneal cavity. Drainage is facilitated the condition being thereby rendered much less serious. Cicatrization is easier in the lower segment because it is thin and not very vascular and is passive and at rest during the puerperium. The peritonization of the wound a very important step in the segmental operation is a further protection against infection.

This operation is superior to extraperitoneal section of the lower segment because its technique is simpler and easier it causes less injury to the cellular tissue of the pelvis and therefore is associated with less danger of cellulitis and phlebitis and the peritonization of the wound is more perfect than in the extraperitoneal operation.

AUDREY GOSS MORGAN M.D.

Esmann V. The Course of Labor in Primiparae from Forty to Forty Six Years of Age (Ueber den Geburtsverlauf bei Erst gebarenden im Alter von 40 bis 46 Jahren). *Ugeskr f Læ r* 1930 ii 793

The author reviews the labors of seventy five primiparae between forty and forty six years of age. Thirty seven were spontaneous. Four of the infants were dead. The average weight of the infants was 3 232 gm. In thirty cases in which labor was terminated by forceps there were three dead infants the average weight of which was 3 164 gm. Cesarean section was done in one case. When one macerated infant and an infant weighing 1 900 gm which died during the course of labor are excluded in the calculation the infant mortality was 8.2 per cent. One mother who had a complete perineal tear died eight days after delivery of pulmonary embolism and another with a large intramural fibroma in whom manual separation of the placenta was done died several hours after a forceps delivery with signs of cardiac insufficiency. In seven cases the placenta was removed manually. Albuminuria was present in thirteen. There were four cases of eclampsia.

The labor began with spontaneous rupture of the membranes in twenty one cases. Six of the seven instances of pelvic presentation were in these cases. In four of the six cases spontaneous birth of the presenting pelvis occurred only manual assistance being required. In one of the remaining cases of premature rupture of the membranes—a case complicated by a rachitic flat pelvis—labor was terminated by cesarean section and in six it was

term nated by forceps. In eight delivery occurred spontaneously. The incidence of operative interference was 45.3 per cent.

The author concludes that older primiparae should always be given the benefit of clinical treatment. He disapproves of the recommendation of Hirsch that they be delivered routinely by cesarean section. He admits, however, that at least two of the infants which died in the cases reviewed could have been saved by cesarean section. S. ENGER (G)

### NEWBORN

Pankow W. The Effects of Pregnancy and Labor on the Child (D. I. fu. o. S. h. n. g. r. s. h. ft. d. G. b. t. u. f. d. K. d.) *Kl. Wchsch.* 93: 1-26

From 3 to 4 per cent of all children die in pregnancy or during parturition and another 3 per cent die during the first five days of life. The injuries depend on constitutional diseases of the mother, especially syphilis and tuberculosis, or are caused during labor. Pankow discusses first the important rôle which syphilis plays in the mortality of the fetus during pregnancy and of the child during the first days of life and suggests anti-syphilis treatment of the mother during pregnancy. The earlier the treatment is begun, the more favorable the prognosis for the child, since the infection does not pass from the mother to the child by way of the placenta before the end of the fourth or the beginning of the fifth month of pregnancy.

Tuberculosis endangers the child during pregnancy only very rarely. Infection through the placenta is exceptional. After birth, however, the prognosis for the child is less favorable. Of the children of mothers with manifest tuberculosis—not counting non-viable children weighing less than 2,000 gm.—from 54.5 to 82.7 per cent die within the first year after birth.

Among the most important of the toxicooses of pregnancy which are responsible for the deaths of infants is eclampsia.

Of particular interest are the injuries of the child caused during labor. These may be divided into 2 main groups—pulmonary complications and birth injuries. Congenital pneumonia is not so rare as is generally assumed. Bronchopneumonia from the aspiration of amniotic fluid is more frequent when the fetus is infected as the result of premature rupture of the amniotic sac. In 111 autopsies on newborn infants, Schridde found 119 cases of this condition. Eighty-five of the children were dead

when born and 34 died of pulmonary complications from a few hours to two days after birth.

The most important of all birth injuries is skull trauma. Although the great majority of intracranial hemorrhages are symptomless, there are cases in which the diagnosis may be made clinically from general or local brain symptoms. In still other cases the brain hemorrhage causes death. Von Jaschke reckons the total number of children who die during birth from injury to the skull at 1 per cent of the total number born and as 0.22 per cent when premature infants weighing less than 500 gm. are deducted. However, as a large number of children die from such injuries between the second and sixth week of life, the mortality from skull trauma is about 3 per cent. It is possible to lower the mortality from brain hemorrhages to only a limited extent since such hemorrhages occur even in spontaneous and easy labors. H. R. SCHMIDT (G)

Henderson Y. Incomplete Dilatation of the Lungs as a Factor in Neonatal Mortality. *J. Am. M.* 1931: 495

The author states that the mortality of newborn infants due to failure of respiration, inadequate expansion of the lungs, and pneumonia follows a predictable course which can be appreciably decreased. An inhalation of carbon dioxide in oxygen for ten minutes three times a day for the first few days of life should be given every newborn child to insure full expansion of the lungs. The author believes that this treatment should be required by law.

By histological examinations, Cruikshank determined that nearly 25 per cent of the deaths of newborn infants are due to pneumonia. The time required for full lung expansion ranges from five minutes to two weeks. German observers have attributed incompleteness of lung expansion to incomplete development of the nervous system, the relatively slight reaction of the respiratory center to the irritation of carbon dioxide, and insufficiency of stimuli acting upon the respiratory center due to inactivity of the muscular system of the infants. Lung expansion is delayed longest in debilitated and premature infants.

Henderson describes the types of inhalators to be employed and the methods of administering the inhalations and discusses the percentages of the gas mixture which are necessary for adequate stimulation. He urges that an inhalator be included in the equipment of all maternity hospitals and that provision be made for the use of an inhalator in cases of delivery in private homes. MAGNUS P. URNES, M.D.

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Rowntree L G Greene C H Swingle W W  
and Pfiffner J J Addison's Disease *J Am*  
*M Ass* 1931 xcvi 231

In the last twenty years 115 cases of Addison's disease have been observed at the Mayo Clinic. In the early days there was no specific plan of treatment and the results were almost always uniformly poor. Prior to 1920 desultory efforts at substitution therapy were made with occasional success. Since then every patient with Addison's disease who has gone to the Mayo Clinic has been given special consideration from the standpoint of substitution therapy and considerable progress has been made. Physiological experiments have shown with increasing clearness that the integrity of the suprarenal cortex is essential to life and has therefore given impetus to the search for a form of organotherapy that will provide complete substitution. The results of recent investigations justify the hope that a practical form of such treatment may soon be achieved.

Several factors must be taken into consideration in the treatment of patients with Addison's disease: (1) the nature of the underlying disease and its treatment; (2) the natural course of the disease; (3) the general care of the patient; (4) the treatment of symptoms and complications; and (5) the results of specific organotherapy.

In 1920 a regimen was instituted in the case of the late Dr Muirhead who was suffering from Addison's disease. It was decided to utilize epinephrin to the point of tolerance, administering it subcutaneously by rectum and by mouth repeatedly during the day and in the maximal dose which could be tolerated by each channel of administration. In addition whole suprarenal substance or suprarenal cortex was administered by mouth.

Fifty seven patients have been treated at the Clinic by the Muirhead regimen. Thirty two cases were temporarily benefited and in 20 of these the immediate results were excellent. In some cases the period of improvement lasted for weeks, in others for months and in 10 cases for periods of from three to seven years. In 25 cases however the treatment had no beneficial effect. In general half of the patients receiving the Muirhead treatment showed some benefit, a third responded with excellent results and a sixth were living after three years.

In the last five years various other products prepared from the suprarenal gland or closely related to epinephrin in either their chemical structure or their pharmacological action have been tried in the treatment of Addison's disease. Ephedrin introduced into medicine by Chen and Schmidt has an action like that of epinephrin but Rowntree and Brown

found that when it is used alone it is of no noteworthy therapeutic value in Addison's disease. It may be employed to cause elevation of the blood pressure as an adjunct to specific organotherapy. When adrenalone, an oxidized derivative of epinephrin, was given in large doses to several patients with Addison's disease there were no untoward effects but likewise no striking clinical benefits. Recently Szent Gyorgyi isolated an isomer of glycuronic acid from the suprarenal cortex. The pigmentation in Addison's disease seems to be connected with this isomer hexuronic acid. However Szent Gyorgyi found that hexuronic acid did not prolong the life of suprarenalectomized dogs and seemingly was without a distinct therapeutic effect in 2 cases of Addison's disease. Koehler also prepared an extract from the suprarenal cortex which he believed was of value in certain cases of muscular asthenia. This also was tried but was found to be of no value in Addison's disease.

In March 1930 Swingle and Pfiffner announced the preparation of an aqueous extract of the suprarenal cortex which would indefinitely maintain the life of bilaterally suprarenalectomized cats. Subsequently they reported that by the administration of this extract they were able to revive comatose animals that were on the verge of death from suprarenal insufficiency to restore them to an apparently normal condition and by daily injections to keep them in a semblance of perfect health.

The clinical results in the crises of Addison's disease in 5 cases have convinced Rowntree and Greene of the efficacy of this cortical hormone. The disappearance of anorexia, the increase of appetite to the point of hunger, the gain in weight and the definite euphoria were striking in all cases. As long as the preparation could be administered the results were all that could be desired.

This cortical hormone is not yet available commercially. The problem of the preparation of an active accurately standardized commercial product that will be acceptable to the Council of Pharmacy and Chemistry of the American Medical Association is being studied. When this problem has been solved more accurate appraisal of the therapeutic value of this hormone will be possible.

In addition to most assiduous attention to the details of general care 3 forms of treatment are of importance in Addison's disease: (1) the treatment of the dehydration occurring during the crises by the administration of a solution of glucose 10 per cent and sodium chloride 1 per cent (this is unquestionably the best form of treatment in crises in the absence of a supply of cortical hormone); (2) the Muirhead treatment which is effective in a considerable percentage of cases and under which a num



ber of patients have survived for a number of years and (3) the administration of the cortical hormone which is excellent in the crises of the disease proving effective as a rule within from forty eight to seventy two hours. Time alone will show whether this combination of treatment will sustain life and health over a number of years.

Mackey W A. Excretion Urography. An Experimental Investigation of the Properties of Uroselectan. *Gl g M J* 93 9

Mackey reports experiments carried out on rabbits to determine the effects of uroselectan administered intravenously. Doses of 1.34, 4.65, and 10 gm were administered by injection into the posterior marginal vein of the ear. These doses corresponded to the dose per kilogram of body weight used in clinical cases and the five and seven and a half times that dose respectively. The effects were judged from the general behavior of the animal, the urine, and the histological findings in the kidneys.

None of the animals showed signs of distress when the drug was injected slowly. In one instance rapid injection of the drug caused death, but at necropsy no gross abnormalities could be found.

Examination of urine obtained by catheter at intervals varying from five hours to forty days after the injection yielded no evidence of renal damage due to uroselectan except in the case of an animal with pre-existing chronic nephritis.

Histological examination was made of one kidney twenty-four hours after the injection. The kidney was normal. The other kidney was studied from twelve to forty days after the injection. In no instance was there any microscopic evidence of renal injury. To check this finding, another series of experiments were made in which the mitochondrial changes in the renal cells were investigated as the most delicate available index of lesser cell injury. The animals were killed at various intervals after the injection. No evidence of damage to the mitochondria except in two animals which died immediately after a rapid injection. In the latter there was widespread displacement of the mitochondria.

The urine of control rabbits injected with sodium chloride presented an abundance of albumin and casts.

The renal function findings corresponded accurately with the roentgen findings.

The author believes that uroselectan might be entirely safe in even larger doses than those advised provided the injections were given very slowly.

ELMER HESS, M.D.

Porcari D. Experimental Researches on the Alteration of Function of the Renal Glomeruli in Various Conditions and in Pregnancy. (Researches on the Alteration of Function of the Renal Glomeruli in Various Conditions and in Pregnancy). *Gl g M J* 93 498

The author studied the alternating function of the renal glomeruli in rabbits with vital staining

methods. Under normal conditions from 50 to 60 per cent and during normal pregnancy from 7 to 80 per cent of the glomeruli are active. Diminution of the blood pressure leads to a decrease in the number of functioning glomeruli in non-pregnant rabbits to 40 per cent and in normal pregnant rabbits to 60 per cent. Removal of the kidney or the administration of caffeine increases the number of active glomeruli to from 85 to 90 per cent in non-pregnant rabbits and to from 95 to 100 per cent in pregnant rabbits.

Porcari believes that during pregnancy, as under normal physiological conditions, not all of the glomeruli function simultaneously. The single glomeruli and probably groups of glomeruli function alternately. He concludes that the percentage of functioning glomeruli in a given state is proportional to the volume of blood flowing through the kidneys and to the work required of the renal parenchyma.

PETER A. ROSE, M.D.

Tarot G. Some Unusual Forms of Renal Tuberculosis. (Some Unusual Forms of Renal Tuberculosis). *Gl g M J* 93 3

Closed tuberculosis of the kidney is rare as compared with the ulcerative and open forms. The author reports ten clinical cases and discusses experimental work on rabbits. The closed forms are cut off from the excretory passages. In some cases the occlusus occurs secondarily in the course of the disease. In others it is primary; the foci in the renal parenchyma never breaking through to establish a communication with the ureters.

Some of the author's cases presented the so-called cement kidney or massive tuberculosis. In this form, cavities filled with a chalky substance are found throughout the kidney; the ureter is reduced to an almost filiform cord indicating that the kidney has not functioned for a long time and chalky deposits in the first part of the ureter and in the pelvis show that tuberculous pyelitis and urethritis have been present. In some of the author's cases there was a combination of cement kidney and caseous hydronephrosis or pyonephrosis. Pyonephrosis seems to develop into cement kidney.

When tuberculosis is brought about experimentally in rabbits with virulent cultures of tubercle bacilli and the ureters are ligated, the kidney parenchyma soon undergoes degeneration and necrobiosis, but if the tuberculous foci are small and the bacteria not too virulent, the increased intrapelvic pressure and compression of the kidney tissue tend to destroy the organisms.

Nearly all forms of renal tuberculosis are of hematogenous origin and in the beginning at least are bilateral. Even in cases in which only one kidney is apparently involved, small milary foci undergo retrogression or scars showing that they have been present are generally to be found in the other kidney. If the initial tubercle is near a papilla, it is apt to rupture into the papilla and cause further dissemination of the disease, but if it is

buried deep in the parenchyma it tends to undergo spontaneous retrogression and cicatrization

From the anatomicopathological findings in the author's cases of closed renal tuberculosis it was impossible to say whether the suppression of function of the tuberculous kidney resulting from closure of the ureter will have a good effect in all cases on the involution of the small disseminated tuberculous foci which are usually present also in the apparently normal kidney and have a tendency to undergo spontaneous retrogression. In the cases of persons dying of pulmonary tuberculosis examination of the kidneys at autopsy often discloses typical miliary tubercles containing giant cells or the presence of scars from such tubercles showing that the kidneys have been invaded although during life there were no signs of kidney involvement

AUDREY GOSS MORGAN M D

Kretschmer H L and Hibbs W G Mixed Tumors of the Kidney in Infancy and Childhood A Study of Seventeen Cases *Surg Gynec & Obst* 1931 li 2

The authors report seventeen cases of the so called mixed tumor of Wilms occurring in children. In many of them the nature of the neoplasm was not recognized either at the time of operation or at the time of the first histological examination. The histopathological diagnoses included multiple cell sarcoma, myxomatous tumor, alveolar round cell sarcoma, myxomatous sarcoma and hypernephroma.

According to Thomas tumors of the pelvis of the kidney are rare in infants and children as compared with tumors of the renal parenchyma.

While the kidney is not the only organ that may be the site of malignant disease in infancy and childhood it is easily the most frequent site of malignant disease in the genito urinary tract.

The most common primary neoplasms occurring in children are embryonal tumors of the kidney. These tumors arise within the kidney itself and may occur in any portion of it. They compress the kidney so that it undergoes pressure atrophy. As the kidney takes no part in the tumor formation a layer of fibrous tissue is found between the compression atrophied portion of the organ and the neoplasm. With the exception of the peripheral nodule of kidney which is not compressed the kidney and the adherent tumor cannot be separated without extensive laceration.

The most distinguishing feature of these tumors is their embryonal structure with a variety of tissue of abortive renal elements. The types and number of cells vary in different neoplasms. The tumors are usually made up of myxomatous tissue composed of masses of polymorphous nucleated cells in which are embedded gland or duct like figures resembling uriniferous tubules. The latter may be sparse or abundant. The embryonic tubules in a heteroneous matrix are the most conspicuous features. There are both epithelial and connective tissue elements. The epithelial elements consist of small and

large undifferentiated cells which are often spoken of as epithelial cell nests and embryonal tubules. The connective tissue elements consist of loose stroma, undifferentiated round cells and striated and non striated muscle fibers. These elements are most irregularly mixed. The tubules are in many stages of development and usually consist of single layers of cuboid and columnar epithelium although occasionally there are several layers resting on a thin basement membrane. Most of the tubules are round but some of them have horseshoe shaped lumina which may be irregular in outline. The tubules may occur in dense lobular clumps separated by only a few cells or they may be present as a single tubule in solid masses of undifferentiated cells which divide rapidly. Occasionally the lumen of the tubule may not be visible and other tubules in the process of growth may be indicated by a clumping of cells in the central portions of the masses of undifferentiated cells. The chief features of these cells are their polymorphism, abundance of mitotic figures and dense chromatin. They may have fragmented nuclei and but little cytoplasm. The stroma between the masses of embryonal cells is myxomatous and delicately fibrous. The epithelial cell nests which stain deeply are often sharply defined from undifferentiated masses of cells which are more round and contain less chromatin and fewer mitoses. The fibrous bands which group the tumor cells in rather large clusters contain cells showing spindle shaped nuclei which are usually sparsely distributed.

Another element of these tumors is striated muscle.

Recurrent tumor growths following surgical excision have all been histologically similar to the original tumor.

Extensions and metastases of these tumors are exceptional unless the original tumor is large.

The oldest patient whose case is reported by the authors was six and a half years of age and the youngest was three months.

Hæmaturia is rare. In all of the cases reported a palpable tumor was present. In most of them the tumor was discovered accidentally and was there before the first sign. Moreover the presence of a tumor was about the only complaint. In only three cases was there a history of trauma. As a rule the patient is first seen after the tumor has reached an enormous size.

In all of the cases reviewed there was a very definite secondary anæmia.

The problems of diagnosis and the study of renal function in these cases do not differ from those in the adult. In every case a cystoscopic and pyelographic examination should be made. Intravenous pyelography may be done before the cystoscopic examination and its results checked by pyelograms made from below. In the cases reviewed cystoscopic examination was negative. In one case the pyelogram showed only a few minor changes in the calyces due to clubbing. There was no compression or filling

defect such as is generally associated with a malignant tumor

In many of the cases the tumor so completely filled the kidney pelvis that a pyelogram could not be obtained. This finding may sometimes be confused with a block at the ureteropelvic junction due to a large hydronephrosis associated with linking. In one of the cases in which the tumor was rather soft and slight fluctuation was noted the possibility of hydronephrosis was considered.

The pyelogram is of value in the differentiation not only of types of kidney lesions but also of lesions of the liver and spleen.

The importance of determining the presence of a second kidney and of estimating its function before nephrectomy is just as great in children as in adults. The possibility of bilateral involvement must always be borne in mind. Of the seventeen cases reported bilateral involvement was found in two (12 per cent).

The prognosis of mixed tumors of the kidney in infancy and childhood is unfavorable. In the seventeen cases reported there were sixteen deaths.

C. TRAVERS S. FITZ M.D.

**T. D. H. G. Mixed Hypermorphoid Tumors of the Kidney (Submitted for publication)**  
1933

After a general discussion of mixed tumors of the kidney the author reports two cases. The first case is that of a woman forty-four years of age. Histological examination showed the neoplasm to be made up of areas of hypernephroid sarcomatous leiomyomatous and rhabdomyomatous tissue. It probably originated from aberrant rests of somundifferentiated mesodermal tissue of the primordial kidney.

The second case was that of a woman sixty-five years of age. Histological examination showed the neoplasm to be made up of hypernephroid angiosarcomatous leiomyomatous and rhabdomyomatous tissue and cartilage. The author believes that this tumor also was of embryological origin.

AUDREY GOSS MORGAN M.D.

**Bacon L. and Moroz L. A. An Experimental Study of Decapsulation of the Kidney (Contributed for publication)**  
1933

The authors report experiments on decapsulation which they performed on dogs. After the operation they noted first a period of change in the epithelium of the tubules and glomeruli with hemorrhage. This was followed by abundant proliferation of the interstitial connective tissue which brought about the formation of a new capsule with a considerable degree of sclerosis of the outer layer of the cortex. No vessels of importance were formed between the kidney and the surrounding tissue as Edebohl claims. Nevertheless the newly formed capsule made up of very vascular loose connective tissue such as was described by Edebohl. Instead it was formed

of compact fibrous tissue arranged in layers and containing almost no vessels at all. The findings therefore failed to support Harrison's theory of decompression and Edebohl's theory of arterialization of the kidney.

The authors believe that the newly formed capsule makes the condition of the kidney worse but that in hemolytic nephralgia decapsulation may give temporary good results because of the decompression it produces.

AUDREY GOSS MORGAN M.D.

## BLADDER URETHRA AND PENIS

**Chuvp E. The Treatment of Urethral Fistulae by Interurethral Myorrhaphy of the Levator Ani (Submitted for publication)**  
1933

Methods of closing urethrorectal fistulae include simple cleavage and closure of the two orifices and cleavage with separation of the urethral and rectal lesions and an overlapping of the two walls which requires lowering of the rectum (Young and Stone) or torsion of the rectum (Ziemhicki and Van Oppel). In these procedures the inferior hemorrhoidal nerve is cut. Interposition operations include the operation of Michon in which the perineal skin is utilized that of Fille with interposition of the pouch of Douglas and that of Vitrac in which a flap of fat is employed. Young and Stone combined extensive lowering of the rectum with myorrhaphy of the levator ani.

The operation described by the author requires a urethral lumen of a sufficient caliber. If necessary the lumen is enlarged by dilatation or urethrotomy. The first stage of the operation is a cystostomy for drainage. Myorrhaphy is performed several days later. After rectal cleansing an incision is begun at a point slightly medial to one of the ischial tuberosities curved forward to within from 2 to 4 cm. of the symphysis and terminated at the opposite tuberosity. With the left index finger in the rectum and a catheter in the urethra the rectum and urethra are separated up to the prostate. The finger is then removed from the rectum and after a clean glove has been put on layers of catgut are introduced exterior to the mucosa to close the urethral opening. Closure may be effected by transverse longitudinal or circular urethraphy depending upon the lesion. The rectum is then dilated with a vaginal speculum and the anus pulled down with the forceps so that the anterior rectal wall is brought into view. The rectal opening is closed with two layers of transverse catgut sutures and the held then washed with ether. The freed lateral borders of the levators are sutured to each other in the midline. With the rectal opening pulled as far below the muscle as possible a few fine sutures are introduced to join the rectum to the muscle and the urethra to the muscle. The angles of the incision are partially closed. If the rectal lesion reopens it can be treated in the same way as an ordinary rectal fistula.

CURTIS NELSON M.D.

Bagnoli N Cases of Epithelioma of the Penis  
(Sopra alcuni casi di epithelioma del pene) *Arch  
ital di urol* 1930 vii 221

The author reports nine cases of epithelioma of the penis

Two of the patients were between thirty and forty years of age two between fifty and sixty three between sixty and seventy and two between seventy and eighty Phimosi seems to be an important exciting cause It was found in three (33 1/3 per cent) of the cases reviewed Also in three cases there was a history of syphilis Syphilis and carcinoma frequently coexist A carcinoma in a syphilitic may be diagnosed from certain signs such as woody hardness and a hard extroverted peripheral border of the ulcer involvement of the glands and cachexia In some cases specific treatment is necessary for the differential diagnosis

In 44 per cent of the cases reported the site of the lesion was the prepuce in 33 per cent the glans and in 22 per cent in the urethra

In seven of the cases the course and duration of the disease were about the same In two cases the general condition was so poor it was impossible to obtain reliable information the patients gave thirty and forty days as the duration of the disease but the advanced state of the carcinoma indicated that the lesion had been present longer

The tumor may begin as an ulceration or a small nodule resembling a wart It may appear on any part of the organ In structure it is a pavement cell epithelioma It may present a cauliflower appearance or develop in the form of a carcinomatous ulcer with great infiltration of the base and edges The most frequent sites of origin of the tumor are the prepuce and glans When the entire penis is invaded it may become greatly enlarged but otherwise it remains of normal size The glands are almost always involved Their involvement may be inflammatory or neoplastic

The treatment depends upon the nature and extent of the tumor and the patient's age and general condition Superficial forms may be treated with the roentgen rays or radium but when ulceration or metastases are present the penis must be amputated and the glands enucleated

The author operated in seven of his nine cases Circumcision was performed in one case amputation of the penis alone in three cases and amputation of the penis and enucleation of the glands in three cases In one of the cases which was not treated surgically operation was contra indicated by the poor general condition and the presence of pneumonia In the other case the patient refused operation

In the surgically treated cases there was one death a mortality of 14 2 per cent One of the surgically treated patients was found to be in excellent condition when re examined twenty months after the operation The others were not seen again after their discharge from the hospital

AUDREY GOSS MORGAN, M D

## GENITAL ORGANS

Barringer B S Carcinoma of the Prostate *Ann  
Sur* 1931 xciii 326

There is no general agreement among urologists as to the best therapy for carcinoma of the prostate The author believes that the possibilities of radical surgery are exhausted as certain features in the natural history of the disease preclude the effective application of this form of treatment and that there has been gradual improvement in the control of the condition by irradiation

As pelvic adenopathy occurs in a very high percentage of cases of carcinoma of the prostate capsular infiltration and venous thrombosis by tumor cells often take place early and primary or secondary involvement of the accessory glands at the base of the bladder which will prevent successful surgical treatment of the disease is often present when the patient first seeks advice

The author tabulates the age incidence and symptoms in a series of 280 cases of carcinoma of the prostate The symptoms are not easily differentiated from those of benign hypertrophy and both conditions are often present at the same time Carcinomatous nodules are easy to miss when they are covered by oedematous tissue When in doubtful cases the oedema is reduced by a cycle of high voltage X ray irradiation the diagnosis is easier the hard cancer tissue then being sharply defined from the elastic enlargement of the benign hypertrophy

The initial symptoms of carcinoma of the prostate are chiefly urinary symptoms and pain The 2 most common urinary symptoms occurring early in the disease are frequency and difficulty in urination Others which are common are nocturia retention haematuria urgency and incontinence The pain consists of pain on urination backache pain down the thighs and legs and pain in the lower part of the abdomen and pelvis the rectum and the perineum Occasionally there are no urinary symptoms in well advanced cases of prostatic cancer

Early diagnosis calls for routine examination of the prostate in all men over fifty years of age Persistent frequency difficulty in urination nocturia and retention in the case of any patient of cancer age calls for a most careful search for prostatic carcinoma

The difficulty of accurate diagnosis of prostatic neoplasms has been considerably decreased by the adoption of biopsy by needle puncture and aspiration

In the treatment by irradiation glass seeds of radon low voltage and then high voltage X ray irradiation the radium element pack radon filtered by platinum and gold seeds of radon have been used alone and in various combinations In most cases of prostatic carcinoma a much larger dose of radium than has been employed heretofore a dose comparable to that used for the control of carcinoma of the bladder is necessary The results of radium implantation in tumors of the bladder have con

sistently improved and are considered by the author to be quite superior to those obtained by operative resection

A tissue dose between 10 and 15 skin erythema doses delivered to the tumor is usually necessary

Cystostomy should be done obstructive portions of the prostate removed with cutting forceps or the autery and the entire tumor whatever its limits implanted with 2 mc seeds of radon

Suprapubic exposure is better than the use of the perineal route as it leaves the perineum intact to serve as a protective barrier to extensions of the tumor

C TRAVERS STEPTON M D

R Mittl Z Primary Malignant Tumor of the  
 Ectop Testicle (Sulle opl se maligna p m h  
 d t t l t p ) A h l l d l 1931  
 8

Romiti reports six cases of cancer of undescended testicles two of which were abdominal and four inguinal They were found among forty malignant tumors of the testicle seen at the Surgical Clinic of Bologna in the period from 1920 to 1928 Very few cancers of abdominal testicles have been reported

The discussion of the pathological anatomy of these tumors supplemented with photomicrographs The author divides the neoplasms into two groups The first with large cells he calls seminiferous epithelioma Tumors of this type are peculiar carcinoma originating from the cells of the adult seminiferous tubules and not from the epithelium of the excretory ducts or displaced embryonic rests The three other tumors originated from embryonic tissue They were regularly divided into solid and cystic parts and showed the histological characteristics of embryoids or teratoids

In cancer of an inguinal testicle there is progressive swelling in the inguinal region The testicle becomes large and less mobile Pain occurs spontaneously and on pressure In some cases the growth is rapid and accompanied by a feeling of tension and by pain radiating along the anterior surface of the thigh The diagnosis is interfered with by the aponeurosis of the external oblique which is stretched across the testicle The differentiation of the tumor from pachyvaginitis and tuberculous syphilitic tumors more difficult than when the testicle is in the normal location

In cases of cancer of an abdominal testicle early diagnosis is very difficult There is vague abdominal pain radiating to the lumbar or sacral region or perineum When the tumor becomes large enough to cause pressure there may be various intestinal or genito urinary symptoms Roentgen examination of the digestive and genito urinary tracts is of great aid in the diagnosis

In cancer of an abdominal testicle the prognosis is very unfavorable as the patient generally does not come to treatment until late In cancer of an inguinal testicle the chances for early operation are about as good as when the testicle is in its normal position

In the treatment of cancer of the abdominal testicle the roentgen rays and radium are of value The only preventive treatment of malignant degeneration of the undescended testicle is radical removal of all incompletely descended testicles The author believes this is not justifiable but that an inguinal testicle may be removed if radical operation is necessary for the hernia which often accompanies it

AUDREY GOSS MORGAN M D

Speed R. Aroccele of the Scrotum S g Cl  
 V h l m 1931 9

The author reports a case of aroccele of the scrotum due to a rupture of the rectum which permitted air to escape into the ischioanal fossa a burrow forward into the subcutaneous tissues in between the dartos and skin and spread up into the subcutaneous tissues along the entire right side of the body and down along the right thigh to the ankle

Incision and drainage of the ischioanal fossa was followed by recovery

A ray examination showed a fracture of the right transverse process of the fifth lumbar vertebra a fracture of the sacrum close to the articulation with the right ilium a fracture of the ischium on the right side and a fracture of the superior ramus of the pubis on the right side

J SYDNEY RITTER M D

Hagner F R Sterility in the Male S g Gy  
 & O b l 1931 33

In 15 out of 50 per cent of childless marriages the male is responsible for the sterility In some cases the cause is aspermia or failure of elaboration of semen due to developmental defects which cannot be remedied In some cases the spermatozoa are few and have little or no movement Other causes of male sterility are anatomical abnormalities such as hypospadias and fistula and stricture of the urethra When a cause can be found the condition must be attributed to lack of affinity between the man and the woman When copulation is impossible in spite of normal development the cause is usually exhaustion of the sex glands from prolonged and frequent overstimulation This may be cured by hygienic sex life

Bilateral undescended testicles should be operated upon long before puberty Bilateral tuberculous of the testicles and epididymis is hopeless Bilateral gumma of the testicles may respond to specific treatment The author cites the case of a man with bilateral gummata as large as a human head who begot seven children after receiving specific treatment

Inflammation of the prostate may block the ejaculatory ducts and prevent the escape of the spermatozoa or destroy them This often responds well to treatment True bilateral orchitis from mumps causes permanent sterility The most frequent cause of sterility in the male is bilateral gonorrheal epididymitis in which the scar tissue prevents the egress of spermatozoa especially when

it involves the globus minor. Martin cured sterility due to this cause by anastomosing a patulous vas with the globus major. The author opens the vas passes a tear duct probe followed by a strand of silk worm gut to make sure that the vas is patulous. examines the secretion for live spermatozoa and if these are found performs a lateral anastomosis with silver wire sutures. The first suture is put in the lower end of the incision in the vas a deep bite being taken as this is the anchoring suture for the operation and the obstruction. The suture is then anchored firmly in the lower end of the elliptical incision of the epididymis. Two lateral stitches are put in fairly deep so that they include some of the tubules and then the last and fourth stitch is introduced through the upper end of the incision in the epididymis with care not to occlude the vas. The operation is always performed under general anæsthesia. Beading of the vas indicates occlusion and inoperability. Failure of the first operation does

not contra indicate a second operation after a year. Spermatozoa may appear after from one month to a year.

It is important to stop all bleeding and to avoid incising the vas too high. The author always does a bilateral operation. In three cases in which he performed an anastomosis directly into the testicle the result was a failure. He reviews fifty five cases in which sixty seven operations were performed. In twenty the condition was discovered at exploratory operation to be inoperable because of occlusion of the vas or absence of spermatozoa in the epididymis. In three the operation was performed too recently to warrant an opinion as to the end result. One patient cannot be traced. Of the thirty one others nineteen (61.3 per cent) were cured. Twelve of the nineteen cured patients begot from one to six children after the operation. In the case of one impregnation was followed by a miscarriage.

BENJAMIN F. ROLLER M.D.

# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

Lé i A Layan T Lлевr J A and Well J  
A Case of P ogressive Oste t s Fib osa Cystica  
Treated by Parathyroid etomy (Un a do  
tété fb lyst q e a é l t n pr g s i e tra té  
p le pa thy de tom e) B H i mém S c  
m d d h p d P 93 xl i 83

The authors report the first case of osteitis fibrosa cystica to be treated by parathyroidectomy in France. The patient was a man thirty one years of age who had enjoyed perfect health until the onset of the illness four years prior to the operation. The condition began with local pains of a transient nature in the left leg. At the end of a year pains occurred also in the right leg and made walking and standing difficult. In the third year of the illness the entire skeleton was involved by crises of transient pain there was marked weakness and bony tumors appeared on the left ulna and the tibia. Several fractures of the long bones occurred following slight trauma. During the summer months when the patient was exposed to the sun improvement was noted. Late in the illness he suffered two attacks of renal colic.

The finding of laboratory tests were those typical of osteitis fibrosa cystica. The blood calcium was always from double to triple the normal and the urine contained calcium. Roentgenograms of the bones showed progressive diffuse decalcification and the changes of bony structure commonly associated with osteitis fibrosa cystica. The diagnosis of osteitis fibrosa cystica was confirmed by histological examinations.

Despite varied medical treatment the illness became so grave after four years that the region of the parathyroids was explored. The right superior parathyroid gland which was the size of a lentil was extirpated. It contained an adenoma.

After the operation there was evidence of tetany for a short time but three months later the patient had regained his strength and was able to walk with crutches. The pains had ceased the blood calcium was normal and the calcareuria had disappeared. Sixteen months after the operation there were curvatures of the long bones and spinal deformity due to compression of the vertebrae but the recalcification of the bones was more advanced and the patient was in health. J MES B M sov M D

Scel nabel T G Hype parathyroidism with Osteitis Fibrosa Cystica (Parathyroid Hyperplasia)  
M d Clin A rth Am 93 977

As part of a clinic given for the fourth year class in medicine at the University of Pennsylvania the

author presented a man of twenty six years who was greatly deformed by osteitis fibrosa cystica. Practically every bone in the patient's body had been involved and numerous fractures had occurred. The patient's height was only 45 in whereas before his illness he was 6 ft tall. A photograph taken during his seventeenth year showed that he was also well developed.

The condition began when the patient was twenty one years of age. The first sign was a swelling of the right side of the jaw following an injury received in boxing. Soon thereafter the right patellar ligament was ruptured in a fall on the ice. A roentgenogram taken at that time showed beginning bone changes around the knee which were suggestive of chronic cystic osteitis. The patient soon began to have generalized body pains for which he could get no relief and suffered from nausea with occasional vomiting. A few months later he had a spontaneous fracture of the left femur and in the fall which resulted received numerous other fractures. X ray examination at that time showed besides the fractures a generalized fibrocystic osteitis with appearances at places suggesting giant cell tumor formation. The biopsy diagnosis was giant cell tumor.

After he had sustained still other fractures the patient was admitted to the Philadelphia Hospital in June 1929. The blood showed a mild anemia and the white cell count ranged from 16,400 to 18,400. The blood cholesterol was 130 mgm and the non protein nitrogen content of the blood 42 mgm per 100 c cm. The blood calcium averaged about 15 mgm and the phosphorus ranged from 2.7 to 4 mgm per 100 c cm.

At operation performed in February 1930 a large parathyroid tumor was found and removed. After the operation the blood calcium dropped to 11.5 mgm but gradually returned to 13.5 mgm. In June 1930 additional parathyroid tissue was removed. The blood calcium then dropped to 5.5 mgm.

The author stated that the lesions of the parathyroids was probably a simple hyperplasia but may have been adenomatous.

Clinical and experimental evidence suggests that the relation of the parathyroids to osteitis fibrosa cystica is one of cause and effect. Whatever the explanation the parathyroid factor is harmful and operation on the parathyroids seems logical especially as it has been followed by marked improvement. In some cases tetany has developed after parathyroid extirpation but as a rule the administration of vitamin D and calcium by mouth and in extreme cases of calcium intravenously has offset the effects of the low postoperative blood calcium.

The patient whose case was discussed by the author was relieved by the operation on the para

thyroids to such an extent that no more pathological fractures occurred and he was able to carry on an occupation  
ROBERT V FUNSTON M D

Shands A R The Regeneration of Hyaline Cartilage in Joints An Experimental Study  
*Arch Surg* 1931 xxi 137

Shands reports experiments performed on fourteen dogs in which various joints were cut bruised or otherwise traumatized the animals were killed from one to twelve weeks after the injury and the defects were then examined macroscopically and microscopically

In specimens in which the superficial layers of cartilage had been pared off microscopic examination showed regeneration of hyaline cartilage filling in the defect after from four to eight weeks In specimens in which the defect extended down to the bone matrix definite regeneration with the presence of new deeply stained large multinuclear cartilage cells was found after from four to twelve weeks In specimens in which the defect extended through to the subchondral bone fibrous tissue containing cartilage cells was found in the defects after twelve weeks In cartilage bruised by pounding there was little or no gross evidence of trauma after four weeks and microscopic sections made at the end of that time revealed regeneration of both fibrocartilage and hyaline cartilage

In studies of the knee joint it was found that the repair process varied somewhat in different regions Regeneration of cartilage was apparent in three of eight defects in the patella four of fourteen defects in the femoral condyles three of sixteen defects in the condylar ridges one of ten defects in the intercondylar spaces and two of eleven defects in the articular surface of the knee

The literature shows a difference of opinion as to whether there is a definite covering membrane over articular cartilage which can be called a perichondrium In the author's studies such a membrane was found across all or most of the cartilage border in four of fifty nine good sections In twenty six other slides it was demonstrated on the margin of the cartilage No perichondrium was found in the central portions where there was pressure from weight bearing

In general the best evidence of regeneration of hyaline cartilage was found after twelve weeks and very little before four weeks The sequence of repair tissues was (1) fibrin (2) granulation tissue (3) connective tissue (4) connective tissue cartilage (5) fibrocartilage and (6) new hyaline cartilage

WILLIAM ARTHUR CLARK M D

Cecil R L Nicholls E E and Stainsby W J  
The Etiology of Rheumatoid Arthritis *Am J Med Sc* 1931 clxxi 12

In the authors opinion rheumatoid arthritis is a chronic infection due in the great majority of cases to a specific type of streptococcus This view is supported by the fact that the patients almost in

variably give a history of numerous previous infections the clinical course of the condition is strongly suggestive of a chronic infectious disease and the characteristic joint changes are essentially those of an inflammatory lesion

The frequent presence of streptococci in the various foci of infection associated with rheumatoid arthritis suggested that these organisms might be a cause During the last three years the authors have conducted an intensive bacteriological study of rheumatoid arthritis on the Second Medical Division of Bellevue Hospital and in the Cornell Clinic New York Of 154 cases in which blood cultures were made according to the authors method 62.3 per cent yielded a short chained streptococcus In the controls taken from normal persons and persons suffering from degenerative arthritis the bacteriological findings were negative Of 49 cases of rheumatoid arthritis in which cultures were made from an affected joint a short chained streptococcus was recovered in 67.3 per cent

The morphological and cultural similarity of the streptococci recovered from the blood and joints of patients with rheumatoid arthritis suggested the possibility that these organisms were biologically identical The serums were therefore tested against several typical strains of streptococci It was found that the serum of practically every patient with well developed rheumatoid arthritis gave a strongly positive agglutination with the typical strains of streptococci With recovery from the symptoms of arthritis these agglutinations disappeared

When a streptococcus of the type recovered so frequently from rheumatoid patients was injected intravenously into rabbits there resulted a subacute or chronic arthritis which closely resembled the same disease in man Moreover the same organism was frequently recovered from the blood stream and from the affected joints of the arthritic rabbits

The authors believe that the development of rheumatoid arthritis requires (1) a focus of infection (2) a streptococcus bacteremia and (3) susceptibility to streptococcal infection of the joints The exact nature of the susceptibility is not yet understood

The observations reported tend strongly to confirm the theory that rheumatoid arthritis is an infectious disease caused in a high percentage of cases by a specific type of streptococcus which after localization in a primary focus is discharged from time to time into the blood stream and establishes metastatic infections in the joints

ROBERT C LONERGAN M D

Godman E A and Akerson I B The Pathology Associated with Rupture of the Supraspinatus Tendon *Am Surg* 1931 xxi 348

Of 100 shoulder specimens obtained in 52 consecutive autopsies evidences of rupture of the supraspinatus tendon were found in 39 Exposure of the tendon was made through the subacromial bursa All of the subjects were over forty six years





authors state that so called hernia of the nucleus is not an anatomical curiosity but the underlying cause of kyphosis and painful vertebral weakness in adolescents. Among roentgenograms of the spine made in the cases of 200 patients over fourteen years of age who complained of back symptoms the authors found 26 showing evidence of hernia of the nucleus pulposus or epiphysitis and of the 26 patients with these conditions 23 showed a kyphosis or complained of pain in the back.

Vertebral epiphysitis is characterized by a kyphosis which is frequently painful and often mistaken for Pott's disease. The lateral roentgenogram shows precocious points of epiphysal development, numerous dark spots, and often evidence of loss of bone density in the subepiphysal areas.

Nuclear hernia penetrates the body of the vertebra and progressively infiltrates it, destroying the cancellous tissue. The size of the hernia is limited by the resistance of the surrounding bone. The central symmetrical type formed along the path of the notochord are believed to be of congenital origin. Sometimes the herniation is star shaped and extends in an anteroposterior direction. In such cases it involves the disk tissue rather than the nucleus.

After the age of twenty two years it is very difficult even with the aid of excellent roentgenograms to differentiate between epiphysitis and nuclear hernia but it is generally agreed that the painful kyphosis of adolescents is almost always caused by nuclear hernia rather than by epiphysitis.

The authors cite a case in which epiphysitis was found at the age of fifteen years but eight years later the roentgenogram showed numerous irregular herniae of the disk tissue and no evidence of epiphysal disturbance or absorption. They conclude that epiphysitis and nuclear herniae are roentgenological manifestations of the same disease namely the kyphosis of adolescents. KELLOGG SPEED M D

**Mantovani D. Calcification of the Nucleus Pulposus of the Intervertebral Disks** (Calcification du nucleus pulposus des disques intervertébraux) *Arch. franco-belges de chir.* 1929 1930 XLIII 488

Calcification of the nucleus pulposus described for the first time by Calve and Galland in 1912 has been found in thirteen other cases since then including a case seen by the author and reported in this article.

The nucleus pulposus is not visible in the roentgenogram unless it is calcified when it appears as a lenticular opaque shadow of irregular thickness but of a granular aspect which is situated in the posterior portion of the intervertebral disk and is clearly differentiated from the surfaces of the vertebral bodies.

The etiology and pathogenesis of the calcification have not been established. According to the findings of Nicotra the condition is a localized infectious intervertebral chondroneuritis belonging in the same classification as infectious intervertebral spondylitis with the radicular syndrome. This theory

is accepted by Lyon, Ciongo and Breton who believe that tuberculosis, typhoid fever or influenza may be the causes. Other causes suggested are traumatism (Borsony and Pulgar) and a disturbance in the development of embryonic elements of the dorsal cord (Calve). The resorption of the calcification observed by Nicotra, the presence of fever and the variable age of the patients suggest that there is an infectious lesion especially since the pains of the radicular type, the parasthesia and the muscular weakness which are part of the syndrome indicate a change in the spinal nerves and are not satisfactorily explained by the discovery of calcification in the nucleus pulposus. In some of the cases the lesion was discovered in the course of a roentgen examination made for some other condition.

Mantovani's case was that of a man forty nine years of age who a month previously had fallen from the top of a hayloft and landed on his back. After twenty days in bed he consulted the author on account of dorsal pains with lateral irradiation and a general feeling of exhaustion. Examination revealed a dorsal kyphosis with a marked curvature and decided rigidity of the spine which was painful on pressure. Roentgen examination disclosed a marked scoliosis with its convexity toward the left in the region of the eighth and ninth dorsal vertebrae. The eighth and ninth dorsal vertebrae were flattened in their right halves. In the intervertebral space between the ninth and tenth vertebrae there was an opaque lenticular formation independent of the disk which was interpreted as due to calcification of the nucleus pulposus. An analogous image of more doubtful identification was found in the space between the eleventh and twelfth dorsal vertebrae. There was also an arthritis deformans with the formation of parrot beak osteophytes and thickening of the vertebral ligaments. The traumatism was of too recent date to be considered the cause of the calcification but the pains could easily be explained by the injury and the arthritis of the spine. PACE

**Mayer L. Fixed Paralytic Obliquity of the Pelvis** *J. Bone & Joint Surg.* 1931 XLII 1

Fixed obliquity of the pelvis is a contracture manifested by a persistent downward tilt of the pelvis on one side even in the recumbent position when the legs are held parallel with the midline of the body. The deformity may be classified according to the site of the contracture into the following types: (1) abductor, (2) adductor, (3) both abductor and adductor, (4) spinal abdominal and quadratus lumborum, and (5) combinations of 1, 2 or 3 with 4.

In the early stage the deformity may be corrected by head traction with a push on one leg and a pull on the other. In some cases this may be supplemented by tenotomy. In resistant cases the contracted structures must be divided. The fascia lata may be cut, the greater trochanter chiseled off the capsule of the hip joint cut and the opposite adductors tenotomized. To prevent recurrence a strand

of fascia lata may be anchored to the pubis. In one case cited the hip was fused. In the cases of Types 4 and 5 correction and fusion of a scoliotic spine was necessary. **WALTER P. BLOUNT, M.D.**

**Le Mans Extra Articular and Intra Articular Snapping Hip (Illegible text)**

Snapping hip is defined as a hip in which movement suddenly stops when a certain angle is reached then continues only when an effort is made and is completed rapidly and suddenly. When movement is interrupted a sudden sharp shock is felt in the hip and there is often a characteristic noise due possibly to an irregularity or a fault in the head of the femur or the edge of the acetabulum or the sudden snapping of soft tissues over the bony protuberance.

Snapping hips are of two types the extra articular and the intra articular. The extra articular type is characterized by the sudden jump of a fibrous or muscular band in front of the greater trochanter accompanied by a dull sound. In the intra articular type of snapping hip the disturbance is produced in the true hip joint by movements of the thigh or the pelvis and is accompanied by a fainter sound than that noted in the extra articular type.

After reviewing the literature on the subject the author discusses the bony anatomy of the trochanteric region of the femur the insertion of the gluteus maximus and the relation of the tensor fasciae latae and the heavy middle band of the fascia lata and the vastus externus which passes around or over the greater trochanter. Other factors involved in snapping hip are the length of the neck of the femur a change in the angle of the neck such as is associated with coxa vara and weakness of the round ligament of the head of the femur.

The author discusses the production of snapping hip according to the group of muscles involved. Except in the presence of a definite exostosis on the greater trochanter or coxa vara the only objective finding in the hip at rest is slight relaxation of the joint capsule and this is rare.

Snapping hip is more common in males than in females and occurs most frequently in the third decade of life.

The treatment of the extra articular form depends on the severity of the pain. In the absence of pain no treatment is necessary. When an exploratory incision is made in cases with pain the insertion of the gluteus maximus and the vastus externus should be exposed. These may be sutured to either or to the posterior of the femur.

Only two operations have been performed on snapping hip of the intra articular type—one by Braun who changed the insertion of the cartilaginous lining of the upper border of the acetabulum and the other by Nelaton who resected a strip of tendon from the distal end of the semitendinosus carried it around the gluteus maximus and inserted it into the greater trochanter of the femur thereby

limiting the internal rotation of the thigh. Both operations were successful.

The author reports four cases of snapping hip. **KELLOGG SPEED, M.D.**

## SURGERY OF THE BONES JOINING MUSCLES TENDONS ETC

**Fèvre, M. and Bureau, R. Arthrodesis of the Spine in Scoliosis (Lithodendron)**

Although spinal fusion has been used in the treatment of intra table scoliosis in the United States for over fifteen years it has only recently been practiced in France.

The purposes of the operation are correction of the deformity and stabilization of the spine in a position of equilibrium. Compensatory hinge like movements may occur above and below the vertebrae operated upon but the grafted area is immobilized.

The authors review the arguments for and against the operation. The four types of scoliosis selected for operative treatment are the scoliosis resulting from infantile paralysis marked scoliosis in adolescents painful scoliosis in adults and congenital scoliosis.

Arthrodesis is indicated especially in the cases of adults but usually is not indicated after the age of fifty years. In the cases of children the danger of causing a disturbance of growth does not constitute a contra indication after the twelfth year of age.

Pre-operative treatment with the use of a corsetting corset continuous extension or a combination of traction and the use of a corset is advisable.

The authors describe the techniques of Hibbs, Albee, Halstead and Whitman.

In the postoperative care the prone position and the wearing of a hivalve corset are necessary.

The results of the operation in France are still difficult to determine. The authors review the results obtained by American surgeons and report eighteen cases in which they operated themselves.

**KELLOGG SPEED, M.D.**

**Lavalle, R. My First Eighty Nine Cases of Pott's Disease Operated upon by the Robertson Lavalle Procedure (Nineteen cases)**

The author has found that in every case of tuberculous osteoarthritis there are walled off foci in the epiphyses of the bones i.e. tuberculous hyaline foci in which the blocked blood has changed its haemoglobin into crystals of haematein and granulations of haematoidin and contain cells of hemosiderin. The tissues of the walled off focus the blood which is deficient in oxygen and the serum constitute a good culture medium for the tubercle bacilli. The author's operation for tuberculous osteoarthritis consists in introducing into the walled off focus an autogenous graft of porous bone

which being permeable to the liquids confined in the focus will permit the circulation of oxygenated blood within it. The Koch bacilli are then weakened by the sudden change in the culture medium and the osseous graft corrects the strangulation of the hyperæmic focus. The single surgical procedure achieves the two main objectives in the battle against the infection—weakening of the Koch bacilli and strengthening of the field in which they develop.

Following a description of his technique the author reports the results of the operation in eighty-nine cases of Pott's disease. When this report was written the time since the operations varied from a few months to four and a half years. Sixty-two per cent of the patients were cured, seven were recovering, five were benefited, one required reoperation, eight were not cured and six died during the first month after the operation.

WILLIAM W. WHITELOCK, PH.D.

Pouzet F. End Results of Resection of the Calcaneus for Tuberculosis (*Les résultats éloignés de la résection du calcanéum dans la tuberculose*). *Rev d'orthop.* 1930 xxxvii 627.

In the case of a fifteen-year-old girl who was suffering from tuberculosis of the calcaneus with fistulous tracts but no other known foci of tuberculosis, Ollier performed a complete subperiosteal resection of the calcaneus in November 1891. About two years were required for complete healing. The patient was reexamined by Pouzet in May 1930, thirty-nine years after the resection. At that time the heel appeared somewhat shrunken and the L-shaped scar was deeply retracted. The skin was normal. The width of the heel was 1 cm less than that of the normal heel, the length of the foot was 1.5 cm less than that of the normal foot, and the height of the malleoli from the ground was 2 cm less than in the normal foot. The long arch of the foot was shortened but was still present. Palpation of the calcaneus revealed only a small amount of bone at the insertion of the tendon of Achilles but the roentgenogram showed considerable regeneration of the calcaneus. The function of the foot was very good except when the patient went up stairs. Pouzet believes that the patient's youth at the time of the operation was an important factor in the subsequent regeneration of the bone and the good functional result.

KELLOGG SPEED, M.D.

## FRACTURES AND DISLOCATIONS

Galland M. Various Displacements of the Intervertebral Nucleus Pulposus: Anteropulsions, Lateropulsions, Retropulsions, Posterior Luxation and Paraplegia (*Les déplacements divers du noyau pulposus intervertébral: ante, latéro et rétropulsions, luxation postérieure et parapégie*). *Arch f anco belges de chir.* 1929 1930 xxxix 479.

The nucleus pulposus is a bean-shaped mass of tissue under pressure situated in the sagittal plane at the juncture of the anterior two thirds and the

posterior third of the intervertebral disk. It is an essential organ in vertebral physiology. It is made up of connective tissue fibers, cartilaginous and connective tissue cells, myomatous cells, and fluid.

Under pressure it tends to separate its adjacent vertebrae from each other and transmits the weight of one vertebra to the next. It forms a veritable wheel axle between adjacent vertebrae. When luxated it forms a peripheral wedge blocking and fixing the disk in a permanent cuneiform arrangement. Embryologically the nucleus is a spinal cord rest. In certain cases of lordosis, kyphosis and lateral deviations from various causes secondary deviation of the nucleus may occur on the convex side of the curves. Examples are seen in compensatory lordosis in certain deformities and scolioses. Primary anomalies of site and development of the cord may cause the eccentric appearance of one or more nuclei. In such cases the luxation of the nucleus is primary and the vertebral deviation is secondary.

The author describes secondary anteropulsion, retropulsion and lateropulsion of the nucleus pulposus and shows these conditions in roentgenograms. Primary displacements of the nucleus are much less frequent than secondary displacements. They are the consequence of an anomaly of location and development of the cord and result in scoliosis and kyphosis. In some cases nuclear pressure may provoke other disturbances and complications such as paraplegia. The author has observed one case of lateropulsion and two cases of primary retropulsion. Kyphoses associated with nuclear retropulsion, localized kyphoses and paraplegias are due to a primary posterior localization of the cord which sometimes is associated with anomalies of development.

PAGE

Jones R. W. Manipulative Reduction of Crush Fractures of the Spine. *Brit M J* 1931 i 300.

The author contends that severe forceful procedures under anesthesia are unnecessary for the reduction of compression fractures of vertebrae. In the procedure he employs the patient is placed face down with his legs resting on one table, his trunk swinging like a bridge between this table and a second table and his arms and head resting on the second table about 18 in. higher than his pelvis. No anesthetic is used. In some cases the patient's weight alone is sufficient to effect reduction with restoration of the shape of the crushed vertebra to its normal rectangular outline as seen in the lateral view.

After the reduction a plaster jacket is applied while the patient is still in the corrected position. A few days later active muscle exercise is begun, the patient lying in his cast and raising his legs and head to bring the spinal muscles into play. After ten days the patient gradually gets on his feet and after sixteen weeks movements of the spine itself are practised. Protection is necessary for four months. Within six months the patient should be able to resume his normal occupation.

This treatment has been carried out in seven cases with good results.

The author urges that in first aid treatment of spinal injuries the patient be carried face down to keep the trunk hyperextended by its own weight.

WILLIAM ARTHUR CLAR M.D.

Gu dj P Traumatic Luxations of the Knee (L  
l t t mat qu du ge o) Rev d th p  
93 xxx 9

In order to determine the exact rôle played by each ligament in the different physiological movements of the knee the author studied the abnormal movements permitted by methodical suppression of different ligaments the ligamentous lesions causing the abnormal movements and exaggerated physiological movements.

A lesion of the crucial ligaments is essential for all luxations of the knee forward backward outward and inward but is not always sufficient alone to permit a luxation. Forward luxations of the knee are the most common. In most cases hyperextension is a causative factor. The most frequent complications are rupture of the skin rupture or compression of the popliteal vessels and laceration or stretching of the external popliteal sciatic nerve.

The author collected 11 cases of complete and incomplete backward luxation of the knee. In most of them hyperextension or rotation was a factor in the etiology. Injury of the popliteal vessels is especially to be feared. In 10 cases there was a recurrent luxation.

Of the posterolateral luxations posterior and outward luxations are the most frequent. Laceration of both crucial ligaments is always accompanied by laceration of at least 1 lateral ligament.

The prognosis of luxations of the knee is generally good. Immediate reduction should be done and followed first by immobilization for from ten to fifteen days and then by massage and prudent active and passive mobilization. Recurring luxation should be treated by continuous extension and prolonged immobilization. The prognosis of traumatic lux-

ation of the knee depends to a great extent on the condition of the lateral and posterior tissues. When the joint is open it must be treated surgically. Vasculo-neural complications and irreducible luxations require immediate surgery. If there is an accompanying meniscus lesion the meniscus should be removed. An articular foreign body should be removed if it is free or attached to the extremity of a crucial ligament. Vasomotor disturbances may be benefited more by operation on the sympathetic nerves than by massage counterirritants and hydrotherapy. P. CE

Gat Hle J Th Ju ta etrope on l Rout In  
th Operati e Tre tment of Fracture of the  
M lleolus with a P t rio Margin l Fragment  
S g Gy c & Ob t 1931 l 67

The operation described by the author was developed to effect reduction in those difficult fractures of the tibia at the ankle in which there is displacement of a posterior marginal fragment associated with fracture of the fibula.

An incision is made parallel with and just behind the fibula extending around the external malleolus. The peroneal tendons are exposed freed from their sheaths and retracted forward. The lower fragment of the fibula is then turned downward without division of the peroneo-astragaloid ligaments. The foot extended the tendon of Achilles retracted backward and the posterior marginal fragment thus exposed.

The astragalus is brought into proper alignment with the tibia by manipulation of the foot. The posterior marginal fragment is reduced and fixed in place by a screw passed forward and upward through it into the tibia. A second screw through the external malleolus holds it in position against the tibia. If necessary a Parham band is placed around the fibula at the site of its fracture. If the internal malleolus is also fractured it is fixed in position through a medial incision at the same operation.

A perfect functional result is reported.

CHESTER C GUY M.D.

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Wright A D The Treatment of Indolent Ulcer of the Leg *Lancet* 1931 cxxv 457

The author says that indolent ulcer of the leg occurs when the vascular equilibrium is disturbed. Disturbances of vascular equilibrium may be caused by (1) occupations which require prolonged standing (2) pregnancy (3) venous obstruction (4) lymphatic obstruction (5) severe trauma (6) ankylosis of joints (7) senile vascular changes (8) varicose veins (9) Bazin's disease and (10) bodily habitus (obesity and extreme height).

The treatment of indolent ulcer recommended by Wright includes

- 1 Correction of the error in the venous hydraulics by supporting the limb with an elastic adhesive plaster applied directly to the skin ulcer and eczema from the toes to the knee

- 2 Absolute abstinence from local treatment of the ulcer

- 3 The injection of varicose veins

- 4 Skin grafting of extensive ulcers to expedite healing

- 5 The wearing of a permanent support such as an Unna case or a Klebro resin bandage

JOHN H GARLOCK M D

Bumm The Circulatory Hormone in the Treatment of Gangrene of the Extremities (Das Kreislaufhormon in der Behandlung der Extremitätengangraen) *Zentralbl f Chir* 1930 p 2736

With the circulatory hormone it is possible in certain cases to attain localization, sequestration and healing of arteriosclerotic gangrene. This hormone is an internal secretion of the pancreas which is demonstrable in the blood and all organs and tissues and is excreted in the urine. One unit contains the quantity of hormone found in 5 c cm of urine and an ampoule of the prepared solution contains two units. On intravenous injection it produces a marked lowering and an increase in the amplitude of the carotid blood pressure curve. Its power to lower the blood pressure lies in dilatation of the smallest vessels and makes it valuable in the treatment of Raynaud's gangrene and arteriosclerotic gangrene.

The author reports a cure of beginning arteriosclerotic gangrene of the second toe in a seventy-year old man. After three weeks of ineffective treatment the entire middle portion of the foot showed a bluish red discoloration and there was gangrene of the under surface of the second toe with a mucoid exudate. There was no improvement from heat or elevation. Injection of the circulatory hormone was followed by immediate cessation of

the pain, subsidence of the discoloration, demarcation of the gangrenous portion and desiccation of the necrotic part. The hormone therapy was continued for fourteen days. After four weeks the black, discolored region of the toe fell away and the wound was found to have epithelialized as if under a crust. The patient was discharged as cured and at the present time is still symptom free.

The circulatory hormone cannot help when gross changes in the vessels are already present but when spastic conditions play a part in the nutritional disturbances the hormone treatment is particularly hopeful. At any rate patients with arteriosclerotic gangrene and similar conditions should be treated with the circulatory hormone before amputation is done.

ERICH HEMPEL (2)

## BLOOD TRANSFUSION

Bordley J III Reactions Following Transfusion of Blood with Urinary Suppression and Uræmia *Arch Int Med* 1931 xl 11 288

Delayed or prolonged reaction following transfusion is not rare. The author reports seventeen cases in detail.

The reaction generally runs a peculiar and highly characteristic course. Immediately after the transfusion there is a sharp febrile reaction followed frequently by hæmoglobinuria and invariably by suppression of urine. Then for several days there is symptomatic improvement but continued oliguria. After this interval the characteristic features of the delayed reaction develop rapidly. They usually begin with agitation or drowsiness followed by definite evidences of uræmia. Convulsions and coma may supervene. Frequently death results. Of the seventeen cases reported by the author eleven were fatal. Recovery is associated with diuresis.

Autopsy shows that the kidneys are swollen. The tubular epithelial cells contain droplets of a peculiar pigmented material and present advanced degenerative changes. The tubular lumina are filled with various cells, blood pigment and debris. Small necroses are generally found in the liver.

The author concludes that following the injection of incompatible blood the kidneys are damaged by an irritating or toxic substance which is set free in the blood at the time of the transfusion.

GEORGE A COLLETT M D

Polayes S H and Lederer M Transmission of Syphilis by Blood Transfusion *Am J Syphilis* 1931 xv 72

In this article attention is called to the possibility of transmitting syphilis from donor to recipient or vice versa by blood transfusions. Ten cases reported

in the literature since 1917 are reviewed and the case of an infant which developed syphilis following a blood transfusion is described.

The authors remind us that difficulties are encountered in determining whether or not the blood of a given donor is infectious. They cite cases to prove that neither the absence of clinical signs nor a negative blood Wassermann reaction entirely excludes the presence of syphilis in the donor.

It is urged that family donors be subjected to the same rigid physical and serological examination as professional donors because in a large percentage of the cases reviewed family donors were responsible for the transmission of syphilis to the recipients.

ELIZABETH CRA. STOV

#### LYMPH GLANDS AND LYMPHATIC VESSELS

Stewart F. W. and Doan C. A. An Analysis of the Lymphadenopathy Question with Special Reference to Hodgkin's Disease and Tuberculosis. *A. S.* 1933. 14.

Hodgkin's disease has several heterogeneous but interrelated pathological manifestations. It may be an ill defined chronic lymphadenitis with slight to moderate reticulum cell overgrowth or proliferation of the sinus endothelium and a slight eosinophilic infiltration or it may show a more or less diffuse overgrowth of small lymphocytes associated with a low grade pseudoleukemic blood picture. However in the fully developed typical types there is the characteristic Sternberg cell picture and on occasion a tendency toward various sarcomatoid manifestations.

When studied by supravital staining nodes from cases seen early in the disease show many epithelioid cells similar to those found in tuberculosis. In the later stages of the disease there are perhaps fewer epithelioid cells and a more general connective tissue

reaction. Differences between these pictures and the classical caseous tuberculosis are striking only when the extremes are considered. There are many examples which reveal interrelationships and there are cases in which it is quite impossible to determine where one type ends and the other begins. Hodgkin's disease differs from typical tuberculosis hardly more than the various manifestations of clearly recognized tuberculosis differ from one another—no more than pleurisy with effusion differs from phlyctenule or hyperplastic tuberculosis of the cecum from acute pneumonic phthisis or lupus erythematosus.

The fact that Hodgkin's disease pursues an inevitably fatal course does not rule out tuberculosis as a cause. In the first place it is never treated as tuberculosis in the second the involvement is usually extensive when the patient is first seen and in the third it is impossible to estimate the number of transient lymphadenopathies never subjected to microscopic diagnosis which if studied microscopically might show features leading to the diagnosis of Hodgkin's disease.

With the histopathological approach to the finer cellular differentiation and structure in disease processes which is now possible with the use of supravital staining it may be possible eventually to understand more fully the meaning of these reactions of diverse causation in terms of physiological equilibrium and resistance. The fact that the body has at its disposal only a limited number of cells with which to combat invasion and insult explains the confusion which attends attempts at differentiation in such a closely allied group of diseases as those affecting the lymphatic system.

The control of each definite etiological entity in disease depends upon an understanding of both the pathological agent or factor and the mechanism of adjustment or resistance. SAMUEL F. ARNOLD

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Hume J B Surgical Trauma and Convalescence  
*Lancet* 1931 cxxx 6

Delay in convalescence from a surgical operation whether primary or secondary is due chiefly to the injury inflicted during the operation and psychological or nervous factors

In the preliminaries to operation many unpleasant shocks may be eliminated. Castor oil over stimulates and congests the intestines and causes dehydration. There is less postoperative distention when it is not given. Pre operative starvation is unnecessary, the patient needs fluids and sugars. Sleep is essential the night before operation and is disturbed by purging. Preparation of the abdominal wall can be done the morning of the operation as well as the night before.

Abdominal incisions can be prevented by adequate incisions which will eliminate the necessity for vigorous retraction and pulling on the skin and peritoneum. Imperfect haemostasis and mass ligation cause devitalization and absorption with the consequent entrance of toxic substances into the circulation. Rough handling of viscera and pinching of and traction on the mesentery are conducive to surgical shock.

After treatment is important. A warm bed morphine for restlessness and frequent changes of position help to decrease discomfort and lessen the danger of embolus and shock. A firmly fitting but not too tight binder will also make the patient more comfortable and bed exercises will enable him to walk sooner than absolute immobility for two weeks.

The anaesthetic is important. Any type of anaesthesia which abolishes fear will bring the patient to the operating table a better risk. Avertin if carefully and skillfully administered in the patient's room will overcome fear of the operation. Skillful nursing and attention will save many hypodermics of morphine in the postoperative management of surgical patients.

HOWARD A. MCKNIGHT M.D.

De Takats G. Push Fluids. The Surgeon's Postoperative Order. *Am J Surg* 1931 xi 39

Starting with the treatment of dehydration fever of infants and the recognition of dehydrated states before and after operations and in infections a universal use and frequent abuse of excessive fluid intake have become a routine practice in most hospitals. Often the mechanics of water retention and water excretion are fully ignored and pathological conditions are aggravated.

As long as they are in a stage of compensation patients with myocardial damage show the same

diuresis as normal persons after fluid intake. Delay in the excretion of water is one of the early signs of decompensation. Therefore in the case of a surgical patient whose cardiac insufficiency is barely compensated it is undoubtedly possible to produce decompensation with oedema and dyspnoea by forcing fluids. The excretion of fluids is retarded also in the presence of kidney damage yet the practice of pushing fluids to an extreme in the cases of elderly men with prostatic disease who often have an ascending pyelonephritis in addition to hypertension, nephrosclerosis and cardiac damage is common. When patients with kidney insufficiency are given sodium chloride sodium bicarbonate or other salts in doses of from 15 to 30 gm a day their weight increases because of water retention. The customary 4,000 c.c. of normal salt solution a day represents 40 gm of sodium chloride. This is at least twice the normal daily salt intake. In the cases of greatly dehydrated patients with low blood chlorides and obstruction in the upper part of the intestinal tract the administration of normal salt solution is rational but in the cases of others the administration of salt solution easily leads to water retention particularly if a degenerative kidney lesion prevents a normal salt balance.

The administration of large quantities of sodium chloride solution is contra indicated also by a disturbance of the sodium calcium balance of the blood resulting in excess of sodium ions. This excess may lead to colloid changes in the heart muscle acceleration of metabolism glycosuria and fever.

Following a major surgical operation which prevents the oral intake of fluids for a few days a satisfactory water balance can be maintained with 3,000 c.c. of fluids. Most of the fluids can be given under the skin but in the presence of serious complications the intravenous drip method is useful. A senseless routine pushing of fluids may lead to the water intoxication noted by Rowntree in experimental animals.

SAMUEL J. FOGELSON M.D.

Nicolaysen J and Nicolaysen K. Prophylactic Measures Against Postoperative Thrombosis and Embolism (Prophylaktische Verhaltungsversuchen gegen die postoperative Thrombose und Embolie). *Norsk Mag f Lægevidensk* 1930 xci 913

Postoperative thrombosis is rare in patients under twenty years of age. The thrombi seem to form within the first postoperative days but the symptoms often appear later. Embolism is often not preceded by symptoms of thrombosis. Most fatal rites from pulmonary embolism occur between the second and eleventh days after operation.



The authors review the theories that have been advanced regarding thrombosis and discuss postoperative blood changes and their causes. Of importance among the latter in addition to coagulating substances are hunger and thirst. Crile, Rost, Ruff and Schoenbauer have called attention to these factors. Knud Nicolaysen's investigations show that patients suffer an enormous loss of weight during operation. When the body weight is about 6 kgm this may amount to as much as 500 gm per hour. The results of recent studies on postoperative acidosis are discussed to justify correction of the fluid loss during and after operation particularly by means of transfusions, infusions and drip enemata. In all major fluid losses glucose solution should be administered instead of saline. Ringer's solution Camomile tea is also of value.

According to the observations of De Quervain and Plummer the studies of Rowntree, Shianoy and Johnson and the operative results of Walters, Freund and Boshamer the administration of thyroxin and of thyroid tablets is a valuable prophylactic measure against postoperative thrombosis. On the other hand Poper denies that these substances have a specific action and the authors' studies indicate that they do not play a striking rôle in the prevention of thrombosis. The authors regard the administration of large amounts of fluid as of most importance. They have been unable to confirm Walter's assumption that the basal metabolicism fall after operation but they recommend thyroid preparations to prevent lowering of the blood pressure.

The authors' results at the Reichshospital are summarized in tables. Of 556 cases which were performed during 1919 when large quantities of fluid, glucose and tyropan were given thrombosis and embolism occurred in 4 (0.73 per cent) and death from pulmonary embolism in none whereas of 175 cases in which operation was performed in the period from 1916 to August 31, 1928 thrombosis and embolism occurred in 27 (12.1 per cent) and death from pulmonary embolism in 3. The complications did not occur in patients under twenty years of age. Of 952 cases in which operation was performed on a patient over twenty years of age in the period from 1926 to 1928 thrombosis and embolism occurred in 28.4 per cent and death in 3 per cent whereas of 418 cases in which operation was performed on a patient over twenty years of age in 1929 thrombosis and embolism occurred in 0.66 per cent. Of 639 operations performed between May 5, 1928 and December 31, 1929 in the Hingesund Hospital where only very copious fluid administration is used thrombosis and embolism occurred in 0.78 per cent and death from pulmonary embolism in none whereas of 426 of these cases in which the patient was over twenty years of age thrombosis and embolism occurred in 1.17 per cent.

In the cases of patients whose blood pressure is lower than the average for their age group eph-

edrine is given. To improve the circulation in the legs and pelvis the foot of the bed is elevated.

In the cases of patients subjected to operations which are apt to be followed by embolism (appendectomies, operations on the stomach, bowel, biliary tract, hernia, uterus and uterine adnexa, cystotomies, prostatectomies, resections of the saphenous vein) and in the cases of patients with fracture the authors have adopted a systematic procedure with the following features:

1. Fluid administration. The patient is encouraged to drink as much as possible on the day before operation. Among the fluids given is glucose solution. He receives in addition a drip enema of 1 liter of a 0.9 per cent salt solution with 50 gm of glucose. The attempt is made to increase the fluid intake to 3 liters on the day before the operation. Immediately after the operation the patient receives an enema of 1 liter of water with 2 table-spoonfuls of cognac. This is given in a period of from fifteen to thirty minutes. It is followed in the course of the day by a drip enema of usually 2 liters of a 0.9 per cent salt solution with 50 gm of glucose. On the next two days drip enemata of at least 1 liter are given. From the morning of the first day all patients are given fluid by mouth. Patients with acute abdominal conditions receive 1 liter of salt solution with 50 gm of glucose subcutaneously on the operating table.

2. Tyropan and thyroxin. When possible for several days and always for one day before the operation the patient receives tyropan 3 times daily. On the morning of the day of operation he receives thyroxin subcutaneously. In the course of the same day thyroxin is given twice by mouth or subcutaneously. On the first and second day after the operation the administration of thyroxin 3 times daily is continued. From the third to the tenth day inclusive tyropan is given 3 times daily. Patients with acute abdominal conditions receive tyropan on the operative table.

3. Ephitoin. The blood pressure is taken before and immediately after the operation again in the afternoon of the operative day and on the first and fourth days. Patients having subnormal levels on the day of operation receive ephitoin 3 times a day for three days. Since June 22 all patients over twenty years of age have received ephitoin.

4. Elevation of the bed. When the patient is over twenty years of age and there is danger of embolism from operation or fracture of the lower extremities the foot of the bed is elevated 30 cm on blocks for eight days.

KOROTZINSKY (Z)

Breuer F. Unilateral Postoperative Injury to the Diaphragm (Über die postoperative Zwerchfellschädigung). *Arch f. klin. Ch.* 93: 443.

In 1914 Pasteur called attention to a peculiar form of postoperative pulmonary complication which he called massive collapse. By this term he meant collapse of the basal portion of the lung caused by unilateral paralysis and elevation of the

diaphragm Little has appeared in the German literature on this condition although every surgeon must have observed it relatively frequently after operations on the upper part of the abdomen The author describes it on the basis of nine cases which he reports

Between the third and seventeenth day after a laparotomy the following characteristic unilateral symptoms appear without previous disease of the lungs (1) elevation of the diaphragm (shown by eight roentgenograms) (2) limitation of motion of the diaphragm (3) pain in the region of the insertions of the diaphragm and (4) increased muscular tension in neighboring regions

For the diagnosis of this condition the occurrence of which has been confirmed by Lund among others and reported frequently in the English and American literature examination with the roentgen ray is necessary This examination must be made with the patient in the recumbent position since in the beginning at any rate he is very sick In the roentgen study of diaphragmatic function the work of Mueller and Hitzenger has been of great aid The absolute low or high position of the diaphragm is of less importance than high position of one side as compared with the other The typical diaphragmatic pain consists of spontaneous pain and pain on pressure in the region of the insertions of the diaphragm The muscular symptoms referable to the diaphragm consist of partial fixation of the diseased half of the chest and tension of the wall of the upper part of the abdomen on the diseased side

The English assume that the factors concerned in the pathogenesis are purely reflex but the author believes that besides reflex factors the disease condition of the diaphragm which Wicker recently called diaphragmatitis is a cause of the syndrome During operations—resection of the stomach for example—a certain number of bacteria always gain access to the abdominal cavity and reach the serous coat of the diaphragm the interior of the diaphragm and thence under some circumstances the pleura That the lymph stream plays a still greater role in conveying the infection is well known An infection usually meets with less resistance in making its way from the abdominal to the thoracic cavity than when it travels from the thoracic to the abdominal cavity The pathologico-anatomical substratum of diaphragmatitis the symptoms of which are just the same as those of the diaphragmatic condition under discussion is a leucocytic infiltration

The reflex connections of and to the diaphragm are numerous This fact explains the great variety of the phenomena in diaphragmatitis Potenger says that in this respect the diaphragm is joined up with all of the organs which send centripetal impulses to the segments conveying motor energy to it The injury to the diaphragm is important in still another respect The elevation of the diaphragm determined by it must be looked upon as one of the accessory causes of postoperative pulmonary complications as it interferes with respiration in the

portions of the lung adjacent to the diaphragm Engorgement or oedema therefore occurs readily and infectious material arriving by any route easily leads to pneumonia or bronchitis A STAFF (Z)

Ballin M and Morse P F Progressive Postoperative Gangrene of the Skin *Am J Surg* 1931 xi 81

The authors discuss ten cases of progressive postoperative gangrene of the skin which have been reported in the literature and four of their own All of the patients recovered The duration of healing ranged from two to twenty-two months

The condition must be distinguished from common wound infection erysipelas and gas bacillus infection The gangrene does not extend deeper than the skin As a rule a mixed infection is present

The treatment consists in cutting around the undetermined edges preferably with an electrocautery knife to excise the whole serpiginous edge of the process about 1 or 2 cm from the undermined area It is not necessary to cauterize the middle of the defect where the process has stopped but the progressive gangrene of the skin must be excised The pain usually stops immediately after the operation The wound may be covered with vaseline or any moist dressing and a skin graft applied to the defect after a week Skin grafting shortens the time of healing

CARL R STEINKE M D

## ANÆSTHESIA

Johnston F D and Cabot H Explosions Occurring During the Use of Ethylene *Am J Surg* 1931 xxi 9

This article is a rather detailed discussion of the theoretical and practical conditions associated with the explosions which have occurred with ethylene used in combination with oxygen for the induction of anesthesia The theory of electrostatics the electron theory and the application of these theories to anæsthetic machines are set forth at some length The authors then discuss the origin of static charges in and about the machines now used for the administration of ethylene This work was carefully checked by a physicist Professor N H Williams of the University of Michigan

The methods of preventing the development of such static charges are then explained and upon the basis of this study the following recommendations are made

- 1 Enforcement of strict regulations prohibiting the use of electrical equipment or any obvious source of heat in the vicinity of the anæsthetic machine
- 2 Means to prevent explosions due to static sparks originating outside of the machine

A A thin sheet of metal flooring forming a continuous pathway from the anæsthetic room to the operating room and covering the floor of the operating room

B Chains electrically connected to and suspended from anæsthetic machines and other

movable equipment so as to drag on the metal floor

C Projection of the spiral conductor embedded in the breathing tubes into the lumen of the tubes and its electrical joining to metal pieces at the extremities of the hose a coarse network of copper wire covering the breathing tubes and soldered to the metal ends metal plates connected electrically to the metal floor placed on the outside of all doors leading into the operating rooms in such a way that the doors cannot be opened without touching these plates

D Connection of the patent and the metal frame of the operating table by a chain ending in a suitable piece of metal in contact with the patient's skin

3 Measures to prevent explosions due to static spark with machines

A The trial of a small quantity of radio active substance within the rubber rebreathing bag

B If the foregoing method does not absolutely prevent the accumulation of charges on the bag replacement of the bag with a manometric device described

C Weekly inspection of the check valve admitting gases into the mixing chamber to be sure that the valve and valve seat are clean and dry

4 Occasional tests with a gold leaf electroscope during the cold months of the year to be sure that the apparatus is not developing static charges

Olmsted J M D and Giragsointz G Some Effects of Amytal Anesthesia J L B & Co Vol 93 1 354

The authors have found that amytal profoundly affects the respiratory center and prevents gastric secretion. In clinical case the blood pressure fell and the heart rate was increased. In cats asphyxiated to cause a typical rise in the blood pressure. Dogs fed on a diet rich in carbohydrates show a lighter rise in the blood sugar after amytal but not after a lean meat diet.

When injected simultaneously with morphine amytal prevents hyperglycemia and when injected after morphine it checks glycogenolysis. It prevents the rise in the blood sugar which would normally follow two minutes of a phylaxia but does not prevent it in the late stages of asphyxia.

GEORGE R McAULIFF M D

Freidlander B The Therapeutic Indications of the Sodium Salt of the Secondary Butyl Bromallyl Bromosulfuric Acid (Pernoxon) Am J A 1 931 x 26

Pernoxon induces a state closely resembling normal sleep without causing the psychic traumata of inhalation anesthesia. It should be given slowly by intravenous injection and the dose should never exceed 1 ccm per 12.5 kgm of body weight. Frequently the patient falls asleep during the injection. After from fifteen to twenty minutes ether may be given. The postoperative sleep may last from two to five hours. Nausea and vomiting are absent.

The author has used pernoxon successfully in 700 cases. GEORGE R McAULIFF M D

## SURGICAL INSTRUMENTS AND APPARATUS

Meleny F L and Chatfield M The Sterility of Catgut in Relation to Hospital Infections with an Efficient Test for the Sterility of Catgut S J G & Obst 93 11 430

It has been demonstrated by the development of postoperative infections traced to catgut and by examination of specimens of catgut obtained in the open market that surgeons throughout the United States are using contaminated catgut from time to time.

In bacteriological studies of catgut the authors have found all of the common gas gangrene organisms and others have demonstrated the bacillus of tetanus. The authors state that the media used in testing the sterility of catgut should be a clear fluid containing adequate nutrient substances such as meat infusion broth with peptone and reducing substances such as glucose and gelatin. Its hydrogen ion concentration should be the optimum for the pathogenic spore forming anaerobes which is from pH 7 to 7.4. It should be sealed with an impervious seal such as vaseline or valspar which should be overlaid within a few minutes after transfer of the catgut. Before inoculation into the media the catgut should be washed as free as possible from the suspending fluids and neutralized with chemicals. The heaviest strands of catgut from each batch should be selected for the test. After inoculation the catgut should be classed as sterile only when there is no evidence of growth after incubation for at least fifteen days.

SAMUEL KAHN M D

# PHYSICO-CHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Thomson G P Some Recent Experiments on Cathode Rays *Brit J Radiol* 1931 iv 52

The study of cathode rays the necessary antecedents of  $\lambda$  rays advanced rapidly after recognition of the electron and constitutes one of the most convenient ways of studying the properties of the electron Broglie who founded the theory of wave mechanics has strongly influenced the views on the nature of electrons

The author has experimentally proved the Broglie wave theory by showing the identical similarity of interferences produced by  $\lambda$  rays and those produced by cathode rays passed through given substances and received on sensitive films Instead of a diffraction grating of crystal such as is employed for the measurement of the wave length of  $\lambda$  rays an extremely thin film of metal was used in the author's experiment This produced the same pattern of concentric circles on the sensitive film as  $\lambda$  rays The identity of the cathode rays was assured by deflecting the beam by means of a magnetic field placed between the metal film and the sensitive screen the magnetic field not having any influence on  $\lambda$  rays

In conclusion the author says that the cathode rays as well as  $\lambda$  rays can be used in the investigation of crystalline structures through the wave patterns produced by the reflection of the cathode rays from the surface under investigation onto a sensitive film

CLARENCE V BATEMAN M D

Desjardins A U Radiotherapy for Inflammatory Conditions *J Am M Ass* 1931 xcvi 401

The value of radiotherapy in the treatment of many acute subacute and chronic inflammatory processes is not so well known as it should be This is apparently because the sound experimental basis and the mass of clinical and other evidence on which it rests have not been considered and because many questionable or wholly unfounded ideas have been advanced as explanations As in so many other phases of radiotherapy the first knowledge of the possible value of irradiation in inflammatory conditions resulted from the observation of unexpected benefit following exposure for diagnostic purposes of parts of the body which were the site of inflammatory lesions

The influence of irradiation on lesions such as furuncle carbuncle and other pyogenic infections especially during the stage of maximal leucocytic infiltration i e before the stage of frank suppuration has been demonstrated by numerous observers Even now however this method of treatment is not used as widely as it might be probably because its

value is not generally realized A review of all of the published reports shows that in the majority of cases it results in great and prompt benefit Pain is relieved in about twenty four hours although in a small percentage of cases such relief may be preceded by a temporary increase in the pain The best results are obtained when the lesions are treated early

Few physicians know that treatment by roentgen rays may be invaluable in pneumonia Irradiation has been used successfully also in the treatment of trachoma Its action is greatest in the early stages of the granular form of the disease In the later stages when the lymphoid granulations have been replaced by connective tissue irradiation has little if any effect

In the last few years it has been found that erysipelas often responds well to radiotherapy particularly if the patient is an adult and the treatment is given early For some reason children do not receive so much benefit

Acute parotitis is an uncommon but a sinister complication of certain surgical operations Its incidence is low in general surgery but higher in operations on the large intestine In several cases in which a moderate dose of radium was applied soon after the onset of the condition the inflammatory process subsided within from twenty four to forty eight hours suppuration was prevented and the mortality was correspondingly reduced Suppuration was only a tenth as common after irradiation by radium as after ordinary methods of treatment In only two of twenty cases was surgical drainage necessary A few patients were treated with roentgen rays with equally encouraging results Radium irradiation is preferable in many cases of post-operative parotitis because it can be given without disturbing the patient The salient effects of irradiation are relief of pain and rapidity of regression of the condition

On the assumption that the infiltrative stage of chronic parenchymatous nephritis is characterized by round cell infiltration around the glomeruli and larger intertubular vessels and that such infiltrating round cells should be susceptible to irradiation several investigators treated patients with chronic nephritis by irradiation The results in most cases were good If eventually it should be proved that relief has been obtained irradiation may offer a valuable means of treating such cases because in certain forms of nephritis leucocytic infiltration is a marked feature of the pathological picture

Exposure to small or moderate doses of roentgen rays has been found to yield equally good results in many other inflammatory lesions

The dose of rays is small or moderate A single exposure of a few minutes is sufficient if the lesion

can be irradiated through a single field. In some cases it may be necessary to repeat the treatment once or twice at differing intervals.

### RADIUM

Souttar H. S. Radium in the Service of Surgery  
*Br J Med J* 93 1

This is a general review of the present day position of the staff of the London Hospital with regard to the value of radium. The author believes that the introduction of needles and of seeds is a great advance and that the local cure of almost every form of cancer is only a matter of time. Cancers which have spread widely however present a difficult problem.

Cancer of the breast is treated by the introduction of cross hatched columns of seeds about the primary tumor and in the axilla. In carcinoma of the tongue the growing edge of the tumor is infiltrated with a uniform barrier of seeds with a strength of about 25 mc which are screened with platinum. The local cure of the growth is often accompanied by failure to check recurrences in the cervical glands. The author regards the rectum as peculiarly adapted to the use of seeds. However he believes that even when a successful result has been obtained from the irradiation excision of the rectum is advisable three months

later since it is impossible to be certain that all of the growth has been destroyed.

No five year results are reported in this study.

C. D. HAAGENS M.D.

### MISCELLANEOUS

Gumbrecht E. P. The Use of Diathermy in Medicine and Surgery  
*Lancet* 93 cc 128

The purposes of medical diathermy are to relieve pain and spasm, to use the temperature to lower the blood pressure and aid the resolution of inflammation. Surgical diathermy is employed to coagulate abnormal tissue *en masse*.

The author reviews the use of diathermy in the various branches of medicine and surgery. He discusses its application in hyperpiesis, intermittent claudication, pneumonia, mucous colitis, asthma, and arthritis. He does not make a definite report of results as his purpose is mainly to open a discussion of the subjects with which he deals.

He states that medical diathermy has been particularly successful in gynecology as it is a suitable method of applying heat directly to the affected strictures. For salpingitis and puerperal fever he recommends the method devised by Robinson of St. Bartholomew's Hospital, London. He does not describe this technique.

G. TRUP BEARD

## MISCELLANEOUS

### CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Cheatle Sir G L Natural Law in Pathological Growth *Ann Surg* 1931 xciii 3

The normal uses and functions of all varieties of cells have a marked influence upon morphological appearances of tissues when they become pathological. The author compares fibrous connective tissue cells and three varieties of epithelial cells.

In the normal function of fibrous connective tissue cells and in pathological conditions in which these cells are involved desquamation takes no part whereas in the normal function of epidermal cells belonging to the horny layer desquamation and renewal of the cells take place constantly and in pathological lesions of the skin the effects of the desquamation are seen in dermoid cysts with walls containing no hair follicles or sebaceous glands. Under conditions of normal function the epithelial cells of the breast are shed for the elaboration of the secretion of milk. Normal shedding of epithelial cells for the elaboration of secretion takes place also in the prostate and sebaceous glands. As cystic states of the breast and of the sebaceous and prostate glands depend upon the desquamation of epithelium cysts are very common in these glands. In the intestines kidney adrenal glands and liver the function of the epithelial cells does not include desquamation for the elaboration of secretions or excretions. Therefore cysts due to epithelial hyperplasia and neoplasia are uncommon in these viscera.

All of the organs and tissues of the body are affected by the same pathological processes. The chief differences in their pathological states are due to differences in the function and structure of the parts. A pathological condition in a gland containing ducts and acini differs from a similar condition in a gland containing only acini or alveoli by the additional changes that occur in the ducts in the former type of gland. The breast and thyroid gland undergo precisely similar changes of adenomatous tumors, cystic formations and malignant diseases; the chief differences in their pathological conditions being due to the presence of ducts in the breast. The pathological changes in the gastrointestinal mucous membrane differ from those of the breast, thyroid and prostate gland only by reason of differences in structure and function of these organs. The epithelial elements in all of them undergo similar desquamative hyperplasia and benign and malignant neoplasia. An adenoma of the intestine resembles an adenoma that has formed in a duct of the breast. The fact that the ducts of the breast are of such small caliber that they are dilated by tumors growing within them has given rise to the erroneous term

intracystic adenoma. Adenoma of the colon occurs in a tube so large that the dilatation is not sufficient to lead the observer to regard the neoplasm as an intracystic tumor.

The differences between papillomata growing from the pelvis of the kidney, the urinary bladder and the epidermis and papillomata arising from the ducts of the breast and the colon are also due chiefly to differences in structure and function. The functions of the epithelium of the pelvis of the kidney, urinary bladder and epidermis are chiefly those of providing a covering or lining surface. The functions of breast epithelium are a great deal more complicated since at puberty and lactation new glandular elements must be formed.

Fibro adenomata and adenomata usually remain benign throughout their course. When they become malignant it is their connective tissue elements which become anaplastic and appear sarcomatous morphologically or develop metastatic growths. Papillomata on the other hand commonly terminate in carcinomatous degeneration. These tumors are similar in their attempts to reproduce normal structures and functions and in their multiple origin. It is not so common to discover either sarcoma or carcinoma arising from multicentric sources. The source of these diseases is usually limited to one part of a tissue or gland.

The signs of physiological control in benign and malignant tumors do not support the theory that tumors cannot be produced by the introduction of an external agent.

The author's observations indicate the existence of a systemic control over the formation and genesis of benign and malignant tumors. There is considerable experimental evidence to show that epithelial and connective tissue hyperplasia may be induced by overactivity of the corpus luteum and that this action of the corpus luteum may be prolonged by hormones in the anterior lobe of the pituitary gland. At the present time the relation of these hormones to diseases of the breast can be only inferred.

MANUEL L. LICHTENSTEIN, M.D.

Hallam R The Enigma of the Chlilblain *Brit Med J* 1931 215

Chlilblain is essentially a disease of the first decades of life. Of a series of 100 consecutive cases studied by the author it occurred before the twentieth year in 83. In the aged it is rare even when serious organic disease is present.

Histologically the early stages are characterized by a rapid degeneration of the small vessels with perivascular infiltration. Besides the transudation of serum there is sudden and severe damage of the vessels of the papillary layer of the cutis.

In a susceptible person chilblain begins about eighteen hours after exposure to cold of the requisite severity. If the temperature remains low the chilblain undergoes little change but if the temperature is raised it ceases with surprising rapidity. Of 14 patients with arteriosclerosis among 1,275 patients attending an outpatient clinic and of 2 suffering from myxoedema none gave a history of chilblain whereas of 86 with some form of heart disease 15 had had chilblains and of 4 under treatment for exophthalmic goiter 3 gave a history of that condition.

In Raynaud's disease which Lewis has shown to be a spasmodic arrest of the circulation due to contraction of the digital arteries chilblain is not common.

Though the etiology of the chilblain is still obscure it appears that there must be an unknown and independent factor producing a change in the wall of the smaller cuticular vessels in addition to a factor retarding the blood stream. A change in the vessel is necessary before exposure to cold is able to damage the tissues since in the normal skin the capillaries are found to be intact even after the skin has been sufficiently frozen to form a wheal.

The author's findings with regard to the coagulability of the blood of persons with chilblains and acrocyanotics do not support the theory that the coagulation time is delayed. It is doubtful also whether there is any reason for the belief that calcium deficiency is a factor. The vitamin content and the mineral constituent of foods do not seem to bear any relation to the incidence of chilblains.

ANTHONY T. S. AND M. D.

Adams, F. E. and Bigg, H. J. Experimental and Clinical Studies on the Therapeutic Effect of Dichloroethyl sulphide (Mustard Gas) in Septicæmia. *Brit. J. Surg.* 1935, 2, 9.

Mustard gas solution applied to the skin produces a tense hyperæmia, œdema, vesicles, leucocytic infiltration and finally ulceration which is slow to heal. Following its application to the ear, the tumor could be eradicated with recurrence. Intramuscular injection yielded similar results but caused more intense local reaction. A dosage of from 1 to 10 mm of a 10 per cent solution of mustard gas is absolutely adequate. Clinical cases of leukaemia treated with this solution on which there has been freedom from recurrence for several months since the treatment are reported.

V. R. N. G. BURTON AND M. D.

Phemister, D. B. Undifferentiated R. and Cell Sarcoma. *Ann. Surg.* 1935, 101, 5.

For many years it has been taught that the less differentiated the cell the more malignant the tumor, the earlier the neoplasm gives rise to metastases and the more unfavorable the prognosis. This has been regarded as true particularly of carcinomata. Broders has classified carcinomata into four types according to their morphology which corresponds

roughly to their degree of malignancy. Sarcoma presents exceptions to the rule more frequently than carcinoma. The best example is perhaps the undifferentiated round cell sarcoma found most often in the bones and the connective tissues of the soft parts of the extremities. In five cases of such sarcomata occurring in adults which were treated by the author during the period from 1919 to 1925 a cure lasting for from four and two thirds to ten and three fourths years has been obtained. In two the sarcoma began in bone and in three in the connective tissues about bone. All of the tumors were treated before they had produced cachexia. In no instance was there evidence of metastasis and in none have metastases developed since. Metastases may be absent even when the disease is advanced. The prognosis in this type of case has been greatly improved by the use of irradiation therapy as the neoplasms are among the most radiosensitive of tumors.

In one of the author's cases the treatment consisted of amputation in one case of irradiation by means of radium and the X-rays and in two cases of X-ray irradiation soon followed by excision and radium implantation and subsequent X-ray irradiation.

In one case the tumor disappeared under X-ray irradiation. The bone in which it had developed was then excised and further X-ray irradiation was given. Biopsy performed in four cases the occurrence of a pathological fracture in one case and a previous incomplete operation in one case did not lead to metastases. In one case several years were required for sequestration of the bone killed by radium treatment as the adjacent tissues which produced the absorption sustained a radium burn.

JOSEPH K. N. RAY, M.D.

## GENERAL BACTERIAL PROTOZOAN AND PARASITIC INFECTIONS

C. Dharmapalan, F. T. S. and S. M. Immunologic Problems in Septicæmia. *C. J. M. J.* 1935, 9.

The author discusses the infective agent in septicæmia, the patient's resistance, complement in health, complement in disease, complement in treatment, antibody, and complement and treatment with normal and immune serum.

He has treated fifty-six cases of septicæmia with serum. Although in the majority the condition was in an advanced stage, forty-five of the patients recovered. Blood cultures showed a hemolytic streptococcus in thirty-eight cases, streptococcus viridans in six, staphylococcus in five, an unidentified diplococcus in one, the colon bacillus in one, a streptococcus and staphylococcus in three, and bacillus pyocyaneus and a staphylococcus in one. Every case with a double infection proved fatal. The treatment was as follows:

From a vein of the arm of a compatible donor from 6 to 7 ccm of blood were withdrawn into a large sterile vacuum tube. The blood was allowed

to clot at room temperature and then placed in the ice chest. From five to eighteen hours later the serum was drawn into a sterile glass syringe and injected into the patient. The transfusions were given every second day. The average number of such treatments was four. On alternate days from 2 to 5 c.c. of immune serum from a rabbit prepared as described were inoculated subcutaneously. It is pointed out, however, that the extended therapeutic use of rabbit serum has limitations as the animals are small, comparatively short lived and susceptible to certain infections.

This method of treatment does not contraindicate surgical intervention for the elimination of focus of infection when such a procedure is feasible.

Attention is called to the fact that the nature of septicæmia varies widely and that a patient with an apparently overwhelming bacterial invasion may recover without special therapeutic aid. Hence the evaluation of any method of treatment on the basis of the clinical results is difficult. As stated by Churchman in a discussion of the intravenous uses of dyes, it is necessary to bear in mind the possibility that attempts at rapid sterilization *in vivo* may defeat their own purpose since the too rapid absorption of freed endotoxins may be followed by serious results.

CARL R. STEINKE, M.D.

## EXPERIMENTAL SURGERY

Ellis J. D. The Rate of Healing of Electrosurgical Wounds as Expressed by Tensile Strength  
*J. Am. Med. Ass.* 1931; xcvi: 16

Only 60 per cent of electrically produced skin wounds showed primary union as compared with 97.5 per cent of control scalpel wounds. When primary union occurred in the electrical wounds it was somewhat weaker than in the scalpel wound and when there was marked dehydration it did not attain a strength equal to that of the scalpel wounds in twenty-one days.

Stomach and muscle incisions electrically produced showed the same incidence of primary union as scalpel wounds. The electrically produced stomach wound were notably weaker at about the midpoint of healing but the electrically produced muscle wounds were almost equal in strength to the scalpel wounds through the entire period of healing.

While these observations do not argue against the use of the electrosurgical knife for surgical incisions under certain circumstances they show that the electrosurgical knife cannot be considered a practical substitute for the scalpel for routine use.

SAMUEL KAHN, M.D.



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## SURGERY OF THE HEAD AND NECK

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## SURGERY OF THE CHEST

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## GENITO URINARY SURGERY

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Slip on the l w f m o a l p p h y s J J K L P  
 L A N D R J A m M 1932 x 1 53  
 Le o of the pp femur G T T O U R S O V R a i l  
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 238  
 P a t e l l h i p a t t a t h a t m u r a l a d j o a l u p o n t  
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 I t e n l l n g e m o t of the knee W C C A M B E L L  
 S g G y e t O b t 93 1 568  
 R g e n a l n f t h e m u c u s H F R I E D R I C H Z e n  
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 T r a u m a t i p o r t h r i t f t h e k n e e L D I A M A N T  
 B E R e r d l S i c R R e d o t h p 193 x v i i 5  
 A c o f g n o c o c c a l a r t l o f t h t h k n e e e r o a l  
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 T h p e a t i e a t m f i t c h o f t a d i s c a r s f  
 t h k R E P A E f t r a l b l f C h r 1930 p 254  
 I j u r v t t h r u f l a n d l a t e r l i g m e n t of the knee  
 J F E S L E R Z e n t l b l f C h i 1930 p 23  
 C n n a l g e u a t u m (a n t n o b l a t o n of the  
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 O b t u o f c h a n i n t h t a l t a t e t y d  
 n b d h l a t O g d e c a E L E U A N V  
 Z n t a l b l f C h r 93 p 57  
 A b e s f t h e b d l l g f t h e b n p m a y e  
 u C D U J A S E R B l l e t m m S n a t d e c h o  
 1931 i v i 34  
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 H l l g t u a d m p l i f d t e a t m e n t J  
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 Surg ry of the Bone Joints Muscles Tendons  
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 F t m e c f k t m y l t s J H G A L  
 R I T S f e l M J 93 x 36  
 T h t m t f a u t h e m t o g n u s t e n y l t  
 w i t h p l l t h u s e m i g g t C C W E L L  
 N T R x n i k R k x l y l s a M J 93  
 x x 33  
 T h q u i n f e t p o r t c h o d t s d n  
 H v o r A h i k l C h r 1930 l r 8  
 S u e f l t m e f t b t r t h r p a t h y a n d  
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 87  
 T h p t e a t m n t f r a t u s p a a l s R E V  
 Z e n t l b l f C h r 93 p 573  
 S t f i n g f t h h u l d i n p e n t a n a n t e a t m e n t  
 W E M A L A h f t h p C h a 93 x x 741  
 P l t o c o p e t u n f r e p l a e m f t h e t h u m b i n c a  
 f c m p l i s o f t h f g r s R R R T D u s e h  
 Z t c h r f C h a 93 c x x 426

Phys of g a t r c o n s t r u c t i o n f t h u m b f i r t a l l o s s  
 S B U N N E L L S r g G y n c & O b t 1931 1 45  
 A t r d s i of the p n e n s l M I L V E R a n d P  
 B U R G E J d c t r 1930 x x v i 721 [554]  
 C h a l i t h e c e r b p a l b u d n P o t t s d e s e L  
 D o i o P l i n P m 93 x x c x 8  
 M y h r t e g h y m i n d a e s f P o t t d e s e a p e a t e d  
 u p n b y t h R o b e r t s o n L a l l e p e l i e R L A V A L L  
 R e m e l l a t A m 1933 x v i 15 [558]  
 S t o f a r t h d s i of the h p f c a l g f  
 c a s s of a r t h d s s f t h h p f o d v e l p i g c x l g  
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 A m e t h d f t h e p e r a t h e d e t r m n t o n f t h e  
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 R d i c a l p e a t i b n f t l e a t t h l w n l t h e  
 f m u w t h t a m p o n d f t h s e r t u m u s c l e  
 O J E N G L e Z e n t l b l f C h r 1930 p 2354  
 A n e w p r t o n f o r t h e t o p a r a l y t g n u r c u r v a  
 t u m L M A Y R A m J S u r g 1931 x 356  
 I s i n o f t h e k n e e t A D e f S i r t h A m J S u r g  
 931 354  
 I n o f t h k n e j n t n a c a o f C h a r c t d e s e a s  
 M C L E V E L A N D A m J S u r g 1933 x 361  
 T h l a t e u l t s f g n o c o c c a l p p i t u e p y a t h  
 of the knee t e d t y t h e m e t h d f l n e l a ( a n a  
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 a n d Z a c o v B u l l t m m S o c n a t d e c h r 1930 1 1  
 149  
 I n d i c a t i n s f r t h r m o a l of the m e n s e i n a t h l e  
 G C E S N O E K R h i d i c h a g y n c k 1930 1 25  
 R s t n o f t h k n f r t u b e u l s M A C L A I R E  
 B u l l t m m S o c n a t d e c h r 1930 i v i 1386  
 T h o p e r a t i o n f t a l d e l m u t e s of the  
 l g H L A B I N S D e t s c h e Z i s c h f C h i 93 c c x x v i  
 28  
 A s t r a g a l t o m y u l t i m t e c u l t A W H I T M A N A m J  
 S 1933 357  
 A s m p l a j h e p a p p i r a t u f o r t h a f t e r t m t o f  
 c l b f o o t A M A R T I N L E W I S I n d a n d l G a z 193 1 7  
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 T h p r a t e t e a t m n t f e s t a r v a R E V Z e n t r a l b l  
 f C h r 93 p 2576  
 P l a t e f i l a i b o n e p l o m l E a c h o n d m a m y s  
 m t o s u m c a l c a m e n H F O H A B E R L A Z e n t l b l f  
 C h i 1933 p 507  
 L d r e u l t f s e t n f t h c a l c a n u s f o r t u b c u l s  
 F P O U Z E R R e v d t h o p 1930 x x x 67 [559]  
 H e r b e r g s o p a t n f h a l l r a l g u s H W A L T E R  
 Z n t r a l b l f C h r 93 p 2509  
 Fractures and Dislocations  
 I t h o l g i c f a c t u e E D W E I N B E R G R a d i o l o g y  
 1933 x 282  
 D u l l f a c t s W C A D A S C a l f 12 & W e t  
 M d 93 x x x 77  
 C o m p o u n d f e c t s L E A N J R J M d C n i n u  
 1933 x i 616  
 T h t e a t m t f f a c t u e s b y s k l e t a l r t c t i n S R  
 C U V I N G I A M S u g G y r e & O b t 93 1 i 573  
 P m a b l e n e a l f a t o a n f c t W B C A R R E L L  
 n d P M G W A R D J A m M 1933 x 670  
 C n e m p l y t h m t h o d f t e a t m t f r f c t u r e  
 f t h l g t u b l I B I R R A h f k l n C h r 1933  
 c l t 33  
 T h b e h a v r o t h a l l u f f t u n r e d a t e d b e  
 N L O V I S T E R R a d i 1 m d 93

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## SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## Blood Vessels

Ep'lep'y f' l'w n multan s'lgat'n of the commo  
c'oud and the ntern l'pular veins OLCARD and  
ARTI Bull et m'm 'c' nat d h'r 1931 l' 24

Syndrom of blite i' g' arteri' f' th' lower limb  
t'ed with a o' a d' various phy' l'ag t' A I  
CANADIAN and F P WIEHER Proc R' Soc Med Lond  
1931 xx 485

T'a m't a' trial a' a' m of th' palmar a' h' J  
VOLUME De is he Zt h'r f' Chr 930 c' xii 151  
A' ur m'o the popl'e l' terv with pa'aly s' f' th'  
te nal popl' teal n' e' COUROSZELS B' deaur ch  
1931 66

Th' f' fa' i' a' ta for th' o' hus f' art nes i'  
e' f' an m' T SHEPPEL IR KLOS An S g  
1931 64

An' n'm of the thy'o'eric f' tery i' w man  
ev' n'y h' ye d'e h'm n' th' f' g' ligat' n' f' the  
ghic' common ca' ud' belo' the a' e' m' and of th' right  
bel' i' d'istal t' the n' unsm' p'es n'at'ion f' the  
pat'ent e' y' s' l' ter at th' age f' h' y' the e' y'  
l' Upo' q' Bull t'm'm S' c' d' h' 1931 l' 32  
Sple' m' galy and hep' t' enl' rgem' t' n' h' d' r'  
h'emo' h' g' t' l' g'ectasi' T' FERR H'LOU JR Am J M  
S 1931 lxx 61

Amp' P' d'it' u'ion of th' inte' n' l'aph' o' e' C  
R'z c' B' l' inst d' cl' qui' 930 v 30

Pr' c'pl and tech' q' f' t' a' n' n' n' by  
th' p'ect' n' meth' d' F' A' Th' is Sug' Clin North  
Am 93 57

The s' g'uc' l' atm' t' of co' d' t' s' P' MAR  
no Pres m'd Par 93 xxx 4

Ulc' e' th' py' w' th' p' th' l' h' l' o' v' Th' p' a  
93 38

Th' t' i' ment of chr' l' e' f' th' leg by l' i' ng flaps  
f' m' the d' m' of th' f' t' b' h' n' z' Ze' i' l' l'  
f' l' t' 193 p 47

Th' t' eam' t' of dolent l' e' of the l' g' A' D' WAT N  
L' n' et 93 x 457 [561]

Thromb' ang' i' t' s' blite ans (Bue' g' r' s' d' r' e' ) H  
S' ILE I' GER W' med W' c' ins 93 770

Th' mb' g' i' u' j' b' l' t' an' i' Nam' T' P' V' O' LE  
f' an' c'et 93 c' c' 98

Fr' m' b' l' t' m' I' M' URF Bull et m' m' S' nat d  
h' y' 9 u 0

Lmb' l' t' my' thes' r' o' i' a' tery A' L' R' AND B' B  
t' m' b' nat d' h' u' 93 l' 47

Th' l' t' r' y' h' r' m' e' i' the t' e' t' i' f' g' e' of  
th' t' m' it' B' u' m' Z' t' r' a' l' l' b' f' Ch' 93 p  
2736 [561]

## Blood Transfusion

The f' m' t' (f' th' blood) y' o' s' h' m' m' b' r' y'  
W' K' N' L' L' Z' t' b' f' m' i' k' r' at' F' o' sch 930  
xx 35

The n' mal c' m' l' r' i' a' l' up of hum' n' whole b' ood  
a' d' b' l' d' s' e' r' u' m' F' LICKER Mu' n' che' m' el' W' h' asch  
1930 888

Iu' ther s' t' d' in th' path' g' n' f' h' e' m' o' p' h' i' a' B  
STUDER and K' LANG Z' t' c' h' f' l' i' n' Med 930 c' u  
590

Th' h' a' m' o' s' t' a' c' f' t' f' c' l' e' m' A' KORUOS Orvos  
h' l' l' 1931 947

Clin' c' al' s' e' t' i' n' s' and s' t' d' s' th' d' s' t' u' b' n' c' e' s' of  
co' g' l' a' t' n' M' KAPRIS and L' MA KUTH Deutsch  
Z' t' s' l' f' Ch' 1930 c' x 1

A' c' l' n' al' t' r' i' b' u' t' o' r' on the pathol' o' g' i' c' al' t' e' n' d' e' n' c' y'  
to v' r' d' t' h' ' n' b' u' f' o' r' m' a' t' i' o' n' H' DIETSCHE Z' e' n' t' r' a' l' b' l' f'  
Ch' 1931 p 2300

Chlorotic anemia w' th a h' l' hyd' i' s' p' l' n' o' m' e' r' a' l' y' and  
m' a' l' e' s' p' c' l' u' r' d' i' a' m' t' s' W' S' McCANN and J' DYE  
Ann Int Med 931 918

A' e' f' e' h' r' o' c' m' y' l' e' n' o' u' l' e' u' k' a' e' m' i' a' w' i' t' h' c' t' e' n' o' u' s'  
c' m' o' and a' u' t' e' l' k' a' m' a' t' o' w' i' t' h' t' r' i' m' m' a' t' i' o' n'  
J' W' ILE W' ELL and P' I' CH' W' ALL B' l' t' m' u' r' y' Soc m' f' d'  
d' h' p' l' Par 93 l' 94

In' h' a' i' s' f' o' r' and t' e' c' h' n' i' q' of l' l' o' d' t' r' a' n' f' u' s' i' o' n' in  
m' f' n' i' s' and ch' d' r' J' L' A' L' L' O' r' o' h' e' t' l' 1931  
54

A' m' th' o' l' f' l' o' o' d' t' r' a' n' f' u' s' i' o' n' w' i' t' h' s' p' e' c' i' f' i' c' e' n' c' e' to  
h' i' l' e' n' D' P' r' o' u' e' B' e' t' M' J' 1931 250

The p' h' y' s' i' c' a' l' b' y' e' b' l' o' o' d' t' r' a' n' f' u' s' i' o' n' h' h' m' o'  
t' e' g' e' A' T' e' c' k' and J' CHARRIEP I' r' e' s' e' m' d' I' a' r'  
93 x 1745

S' t' y' f' i' r' t' h' e' i' n' b' l' o' o' d' t' r' a' n' s' f' u' s' i' o' n' G' S' H' O' R' e'  
D' u' h' Z' t' h' e' f' Ch' e' 930 c' c' x' i' 449

R' e' t' s' f' o' l' l' g' i' n' g' t' r' a' n' s' f' u' s' i' o' n' of b' l' o' o' d' w' i' t' h' m' a' r' y'  
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